

PMSE CENTENNIAL EVENTS

EVENT	LOCATION
PMSE CENTENNIAL RECEPTION	PMSE members stop by PMSE Membership Desk for Reception Info
FUTURE LEADERS OF POLYMERIC MATERIALS SCIENCE AND ENGINEERING	Sunday, 2:00 – 6:00 PM Monday, 8:00 AM – 12:00 PM New Orleans Marriott Regent
CELEBRATION OF SUCCESS AND NEW FRONTIERS IN POLYMERIC MATERIALS SCIENCE AND ENGINEERING	Monday, 2:00 – 5:40 PM Tuesday, 8:00 – 11:40 AM Tuesday, 2:00 – 5:40 PM Wednesday, 8:00 – 11:40 AM New Orleans Marriott Regent
PANEL DISCUSSION: THE FUTURE OF PLASTICS <i>Moderator</i> : Craig J. Hawker (University of California, Santa Barbara). <i>Panelists</i> : Kathryn L. Beers (National Institute of Standards & Technology); Bradley D. Olsen (Massachusetts Institute of Technology); Florian Schattenmann (Cargill); Natalie Stingelin (Georgia Tech) <i>Boxed lunches provided while available</i>	Monday, 12:00 - 2:00 PM New Orleans Marriott Galerie 2
CENTENNIAL POSTER SESSION AND BEST POSTER CONTEST FOR GRADUATE STUDENTS	Monday, 1:30 – 3:30 PM Tuesday, 1:30 – 3:30 PM New Orleans Marriott Studios 3-10
CENTENNIAL POSTER SESSION AND BEST POSTER CONTEST FOR EARLY CAREER RESEARCHERS IN ACADEMIA, INDUSTRY, AND NATIONAL LABS	Wednesday, 1:30 - 3:30 PM New Orleans Marriott Studios 3-10
CENTENNIAL POSTER SESSION AND BEST POSTER CONTEST FOR UNDERGRADUATE STUDENTS	Wednesday, 1:30 – 3:30 PM New Orleans Marriott Studios 3-10

SILVER CENTENNIAL SPONSORS

A MITSUBISHI CHEMICAL GROUP company

BRONZE CENTENNIAL SPONSORS

Center for Sustainable Energy
Materials Science and Engineering

William A. Brookshire
Department of Chemical
and Biomolecular Engineering
Cullen College of Engineering

CENTENNIAL SPONSORS

PMSE PROGRAM

DIVISION OF POLYMERIC MATERIALS SCIENCE AND ENGINEERING

D. Watkins, D. Nepal, Y. Rao and C. Urdaneta Thomas, *Program Chairs*

SUNDAY MORNING

New Orleans Marriott

Regent

Fundamental Characterization and Properties of Polymers

C. Thomas, *Organizer*

K. Bichler, A. J. Porath, *Presiding*

8:00. Chemical security implementation on synthesis of poly (vinyl) acetate emulsion assisted by different hydrolysis degree of protective colloid agent. **M. Hafizah**

8:15. Position dependent segmental relaxation of bottlebrush polymers. **K. Bichler**, B. Jakobi, G. Schneider

8:30. Characterization of thermoset feedstocks for laser powder bed fusion. **M. Blackman**, M. Shofner, C. Chatham

8:45. Bio-derived nitrogenous flame retardant polymers. **C.E. Zavala**, B.G. Harvey

9:00. Withdrawn

9:15. Polypropylene/high-density polyethylene (PP/HDPE) blends: The effect of HDPE on mechanical, rheological, and thermal properties at different weight ratios. **K. Zhan**, X. Wang, T.J. Elder, Y. Peng

9:30 Intermission.

9:45. Understanding the miscibility of silicone fluids with different structural characteristics. **D. Boucher**, D.C. Webster

10:00. SEC/MALS/VISC/DRI characterization of styrene oligomers. **A.M. Striegel**

10:15. Product-specific kinetics and evolved gas analysis-mass spectrometry reveal impact of epoxy crystallization on thermoset thermal degradation. **D. Dwyer**, D.C. Duckworth, A. Miskowiec, J. Niedziela

10:30. Manipulating network structure in a model 3D printing resin toward tunable mechanics and dynamics. **K.M. Van de Voorde**, C. Thompson, S.K. Kozawa, J. Mack

10:45. Defects lower microporosity in high surface area porous aromatic frameworks. **A.J. Porath**, J.R. Bour

11:00. Comparison of nanocellulose crystallinity using a Rietveld analytical approach. **J.H. Jordan**, A.D. French, M.W. Eason

11:15. Distinct microbial communities degrade cellulose diacetate bioplastics in the coastal ocean. **Y. Sun**, M. Mazzotta, C. Miller, A. Apprill, M. Izallalen, S. Mazumder, S.T. Perri, B. Edwards, C. Reddy, C.P. Ward

SUNDAY MORNING

New Orleans Marriott

Mardi Gras Ballroom Salon B

Next Generation Structural Nanocomposites

Modeling Advances and Innovations in Nanocomposites

M. B. Dickerson, O. McNair, D. A. Savin, R. Sweat, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Next generation ultra-strong composites for crewed deep space missions. **G. Odegard**

8:35. Multiscale modeling of polymer nanocomposite interphase. **B. Ma**, C. Brinson

9:05. Understanding mechanical behavior of MXenes for structural multifunctional composites via multiscale modeling. **V. Varshney**, I. Armstrong, J. Hasse, T. Steimle, H. Heinz, A. Prasad, D. Nepal, G. Frank

9:35 Intermission.

9:55. Designing PGNS: Connecting modeling and AI to processing, morphology, and performance. **J.G. Ethier**, R.A. Vaia

10:25. Coarse-grained molecular dynamics simulations of polymer-grafted nanoparticles. **L.M. Hall**

10:55. Molecular dynamics simulations of shock attenuation in multilayered polymer composites. **A. Bowman**, W.A. Pisani, T.L. Thornell

11:15. Micromechanical dilution of PLA/PETG-glass/iron nanocomposites: A more efficient molecular dynamics approach. **W.A. Pisani**, D. Wedgeworth, J.F. Burroughs, T.L. Thornell, J.K. Newman, M.K. Shukla

SUNDAY MORNING

New Orleans Marriott

Galerie 5

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*

D. L. Smith, E. Stacy, *Presiding*

8:00. Polyelectrolyte complex flame retardant treatment for cotton fleece. **D.L. Smith**, S.M. Cotton, N.A. Vest, M.D. Montemayor, J.C. Grunlan

8:15. Withdrawn

8:30. Withdrawn

8:45. Antifouling protection with plant extracts encapsulated into polymers - from short-term experiments to long-term. K. Bratley, E. Cable, B. Sylla, R. Buzzetto, L. Osman, **V. Volkis**

9:00. Design of metal functionalized preceramic polymers for the preparation of ultra high temperature ceramic nanocomposites. **J.F. Ponder**, H.G. Hackbarth, N.D. Posey, J.H. Delcamp, N. Bedford, M.B. Dickerson, T. Pruyne

9:15. Withdrawn

9:30. Stabilizing CFPS materials using solution blow spun polymer nanofiber mats: Influence of polymer properties and processing on activity and water transport. **S. Kozawa**, J.R. Biondo, M.F. Lee, J.A. Lee

9:45 Intermission.

10:00. Polymeric materials for enhanced ocular treatments. **M. Karayilan**, L. Yuan, K. Raheja

10:15. Withdrawn

10:30. Heat-activated formation of silica aerogels from water-enhancing fire gels. **C. Dong**

10:45. Bridging the gap to higher performance silicones for direct ink write. **S. Schmidt**, J. Grondz, M. Ford

11:00. Peptide-functionalized polyplexes for the targeted delivery of mRNA therapeutics. **E. Stacy**, P. Jankoski, T. Clemons

11:15. Suite of polydiacetylenes for comprehensive tamper indication. **S.L. White**, C. Curtis, C. Corbin

11:30. Incorporation of amphiphilic PDMS-based hyperbranched polyglycerol polymers to tune fouling-release properties. **J. Dahlgren**, D.C. Webster

SUNDAY MORNING

New Orleans Marriott

Mardi Gras Ballroom Salon A

Polymers That Are Non-Linear

Financially supported by Tosoh Bioscience

S. M. Grayson, D. Savin, *Organizers*

A. M. Evans, M. D. Giles, *Presiding*

8:00. Branched polymers via reversible addition-fragmentation chain transfer (RAFT) polymerization: Controlling degree of branching and functionality. **P.R. Calvo**

8:30. Dendrimer approach toward high permittivity polymer dielectrics for electrical energy storage. **S. Daymon**, B. Chen, O. Kareem, B.G. Olson, S.M. Grayson, S. Nazarenko

8:50. Complex and supramolecular macromolecular topologies towards AI/ML directed synthesis. **R.C. Advincula**

9:20. Evaluating the lead complexation activity of amino acid-appended, branched polymers to promote water purification. **M.D. Giles**, N. Mohamoud, A. Miles, C. Lacey, P. Hussein, D. Pokhyriyal

9:50 Intermission.

10:10. Dendritic polymers and hydrogels as antibacterial frameworks. Y. Fan, F. Namata, N. Sanz Del Olmo, **M. Malkoch**

10:40. Dendritic carriers as versatile platforms for targeted delivery of hydrophobic drugs. **R. Sanyal**

11:10. Tandem mass spectrometry and ion mobility: Sensitive probes for macromolecular architecture. C. Bochenek, K.N. Williams-Pavlantos, B. Curole, B.J. Crawford, J.M. Eagan, S.M. Grayson, **C. Wesdemiotis**

SUNDAY MORNING

New Orleans Marriott

Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

M. Katiyar, J. Kennedy, *Organizers*

B. Anasori, L. Beagle, A. Thakur, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Discovery and advances on MXenes and MXenes-based composites. **Y. Gogotsi**

8:35. Photophysics of emerging 2D metal thio- and seleno-phosphates. **R. Rao**

8:50. Mechanical properties of polymer-supported graphene oxide membranes. **H.P. Dhruve, K. Zaw, M. Sonker, S. Nair, M. Shofner**

9:05. Chemistry of functionalized MXenes. **A. Vojvodic**

9:35. Tailoring nanoparticle surface chemistry with precision polymer ligands. **C. Amofa, N.D. Ogbonna, M. Dearman, T. Oluwole, J. Lawrence**

9:50. Polyethylene terephthalate functionalized graphene oxide prepared from plastic waste for applications as an upcycled plastic filler. **W. Vickery, S.A. Sydlik**

10:05 Intermission.

10:15. Novel 2D family transition metal Carbo-chalcogenides (TMCCS) potential candidate as functional additive materials. A. Majed, E. Loni, **M. Naguib**

10:45. Towards polymer derived ultra high temperature ceramic nanocomposites. J.F. Ponder, H.G. Hackbarth, N. Bedford, J.H. Delcamp, T. Prunyn, **M.B. Dickerson**, N.D. Posey

11:00. Voronoi inspired core shell architecture of MXene and vitrimer nanocomposites. **M. Carey**, L. Taussig, J. Lipp, P.A. Mirau, R. Wheeler, M. Ostendorf, A. Magenau, D. Nepal

11:15. When 2D materials meet polymers at the interface. **G. Liu**

11:30. Highly stretchable gas barrier coating via a hydrogen-bonded polymer complex. **S. Fisher**, H. Chiang, E. Iverson, E. Chang, J.C. Grunlan

11:45. Investigation of MXenes film stability towards oxidation by spectroscopic ellipsometry. **H. Fang**, A. Thakur, A. Arabi Shamsabadi, B. Anasori, Z. Fakhraai

SUNDAY MORNING

New Orleans Marriott
Galerie 3

Adaptive Materials from Dynamic Polymer Networks and Composites *Functional Dynamic Materials and Nanocomposites*

Financially supported by Tosoh Bioscience LLC; Advanced Composites and Hybrid Materials;
TA Instruments – Waters

C. Evans, *Organizer*

L. Baldwin, M. J. Webber, *Organizers, Presiding*

8:00. Introductory Remarks.

8:05. Recyclable Pani/Paampsa nanocomposite with repeatable, rapid, autonomous self-healing and unprecedented electro-mechanical properties. **C. Duprey**, Y. Lu, J. Jeon, L. Baldwin, Z. Farrell, E.K. Wujcik

8:20. Engineering soft, elastic, and conductive polymers for stretchable electronics using ionic compatibilization. **I. Lapkriengkri**, M. Linh Le, K.R. Albanese, P. Nguyen, C. Tran, J. Blankenship, R.A. Segalman, C.M. Bates, M.L. Chabinyc

8:35. Upcycling polyethylene and ethylene-containing polymers into covalent adaptable networks by one-step, radical-based reactive processing with a dynamic covalent crosslinker. **J.M. Torkelson**

9:00. Viscoelasticity of polymers with dynamic (reversible) bonds: Concepts and challenges. **A.P. Sokolov**

9:25. Enhancing dynamic polymer materials through network architecture and carbon nanotube reinforcement. **D. Konkolewicz**, O. Dodo, N. De Alwis Watuthanthrige, I. Raji, I. Arny, C. Thrasher, S. Wanasinghe, B. Johnson, R. Lowe, A. Cox, T. Osborn, G. Eifert, R. Revadelo

9:50 Intermission.

10:05. Shape reconfiguration of silanolate-based vitrimers using resistive heating. S. Babu, A. Putnam-Neeb, V. Chen, M.F. Durstock, a. Juhl, **L. Baldwin**

10:30. Using molecular dynamics to understand radiofrequency healing of vitrimer composites. **A. Vashisth**

10:55. Covalent adaptable networks comprised of dynamic carbon-nitrogen bonds. **D. Zhang**, A. Chao

11:20. Functional dynamic polymer networks and composites enabled by dynamic covalent chemistry. **W. Zhang**

11:45. Toward pluripotent materials through tempering of dynamic, thia-Michael networks. **N.R. Boynton**, J.M. Dennis, N. Dolinski, C. Lindberg, A. Kotula, G.L. Grocke, S.L. Vivod, J.L. Lenhart, S. Patel, S.J. Rowan

SUNDAY MORNING

New Orleans Marriott
Galerie 4

Biological and Biologically Inspired Adhesion: Enhanced Bonding at the Interface Between Life and Materials Science

Financially supported by Army Research Office

M. T. Kozlowski, J. K. Montclare, *Organizers*
F. Cedano, H. Hess, *Organizers, Presiding*

8:00. Adhesion challenges for polymeric materials. **J.A. Orlicki**, M.T. Kozlowski, N.T. Tran, D.B. Knorr, M.A. Bartucci, J.L. Lenhart

8:30. Probing peptide adhesive interactions with PMMA and PS. **M.T. Kozlowski**, J. Wippold, R.L. Renberg, M. Hurley, I. Yeh, J.A. Orlicki

8:45. Multisubstrate adhesion performance of pressure-sensitive acrylic adhesives with plant oil-based monomers. **B. Domnich**, H. Lynch, A. Voronov

9:00. Starch-based bioadhesive inspired by octopus adhesion behavior for sutureless corneal regeneration. **B. Huang**, W. Song, L. Ren

9:15. High-throughput sequence-function characterization of protein-based materials. **D. Ercek**, D. Vemulapalli, Q. Wang, Y. Chen, C. Mills, K.R. Shull, M. Wang

9:45 Intermission.

10:15. Biomimetic chemistry to create sustainable adhesives for a circular materials economy. **J.J. Wilker**

10:45. Biodegradable bottlebrush polymer adhesives. **B. Saha**, H. Chung

11:00. Cytosine- and ureidocytosine-containing acrylic copolymers with bisguanidine physical crosslinkers for reversible adhesion. **R.K. McDonough**, B. Liu, D. Cappasola, T. Long

11:15. Novel protein-based bioadhesive hydrogel with tunable material properties. **J. Jeon**, F. Zhang

11:30. Designing adhesive protein engineered biomaterials. J. Kronenberg, I. Krishna, J. Wong, **D. Britton**, N. Haq-Siddiqi, J.K. Montclare

SUNDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon C

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*
W. Paiva, N. Starvaggi, *Presiding*

8:00. Polybenzimidazole (PBI) membranes cross-linked with various cross-linkers and impregnated with 4-Sulfocalix [4] arene (Sca4) for organic solvent nanofiltration (OSN). **S.S. Beshahwored**

8:15. Influence of substrate morphology and rheological properties on the morphological evolution of polymer thin films during multiscale micro-pattern fabrication. **T. Teklehainanot**

8:30. True dsDNA Hydrogels: Design, synthesis, and applications. **W. Paiva**, R.A. Achong, M. Jennison-Henderson, A. Weeks, T. Duche, S.D. Alakwe, N. Oldenhuis

8:45. Organocatalysis in ring opening copolymerization as a means of tailoring molecular weight dispersity and the subsequent impact on physical properties in 4D printable photopolymers. **D. Merckle**, A.C. Weems

9:00. Poly(vinylphosphonate)-based hydrogels exhibiting high biocompatibility and tunable material properties. **A.S. Maier**, S. Mansi, P. Mela, B. Rieger

9:15. Nanostructural evolution during sulfonation-induced crosslinking of thermoplastic elastomers for ordered mesoporous carbon synthesis. **M. Robertson**, A. Barbour, A. Griffin, A. Guillen-Obando, P. Smith, Z. Qiang

9:30. Metal-organic framework-grafted emulsion-templated foams for enhanced filtration applications. **C. Thompson**, G. Peterson

9:45 Intermission.

10:00. Precision synthesis using nanoscale electrochemistry. **P. Wilson**

10:15. Direct cured-based patterning of thermally cured thermosets. **B.J. Lear**, J. DiPietro, S. Phillips

10:30. Fabrication of carbon aerogels from furan-based polybenzoxazine precursors. **M. Chauby**, G.R. Palmese, S.L. Vivod, S. Malakooti

10:45. Non-aqueous emulsion ATRP for microcapsule formation. **N. Starvaggi**, E. Pentzer

11:00. Chitosan modified PLGA nanoparticles of gemcitabine HCl for enhanced cellular uptake. S. Powar, **C.D. Bobade**, G. Choudhari, V. Choudhari

11:15. Leveraging impurities in macromonomers to tailor mechanical properties of supersoft bottlebrush networks. **Y. Liu**, H.L. Cater, Z.A. Page

11:30. Combining emulsion templating and 3D printing to generate hierarchical porosity. **S. GHOSH**, B. Nandan, R.K. Srivastava

11:45. Tuning the thermal response of 3D-printed hydrogels via architectural control. **F. Klincewicz**, S. Kalidindi, L. Korley

SUNDAY MORNING

New Orleans Marriott
Galerie 6

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*
J. Lawrence, X. Xu, *Presiding*

8:00. Precise future: Advancing the frontiers of Polymer Science. **J. Lawrence**, N.D. Ogbonna, M. Dearman, C. Amofa, T. Oluwole

8:15. Melt processable insect repellent infused polymer formulations for textile applications. J. Jimenez, N. Hoffmann, J.A. Orlicki, J. Murphy, A. Fulton, M.D. Thum, J. Cilek, M. Perry, R. Casalini, **J. Lundin**

8:30. Electrically insulating and thermally conducting *poly(ether ether ketone)* composites with high loadings of *boron nitride* and *aluminium nitride*. **S. Liu**, A. Sirvent Mena, L. Pallon, K. Kallio, S. Montani, G. Hunt, Y. Negin, M. Hedenqvist

8:45. Constructing sensing fibers & textile with smart particles. **J. Liu**

9:00. Photo-polymerization using quantum dots for stable epoxy coatings. **K.B. Riad**, M.R. Kholghy, P. Wood-Adams

9:15. Advancements in 3D cell encapsulation via native chemical ligation mediated through β -thiolactones. **M.E. Currier**, K. MacCallum, N.J. Oldenhuis

9:30. Advancing semiconducting polymer patterning: Photothermal approach for sub-micron feature fabrication for electronic transistors. **M. Jha**, J.M. Santiana, M.L. Hong, H. Manikantan, A.J. Moule

9:45 Intermission.

10:00. Tough and recyclable phase-separated supramolecular gels via a dehydration–hydration cycle. **X. Xu**, K. Christie, A.L. McGaughey, N. Guillomaitre, S.S. Datta, R.D. Priestley

10:15. Strategies for overcoming charge-related rheological challenges in the 3D printing via direct ink writing of weak polyelectrolyte complexes. **A. Nguyen**, C. Patten, R. Advincula

10:30. Development of all-polymer sorbents for high capacity CO₂ capture. **A. Roy**, H. Holmes, L.S. Baugh, D.C. Calabro, J. Leisen, Y. Ren, S.C. Weston, R.P. Lively, M. Finn

10:45. Chain extension of blocked isocyanates for the creation of covalent adaptable networks. **C.A. Sarantes**, L. LaBeaud, J.S. Wiggins, D.L. Patton

11:00. Withdrawn

11:15. Modular approach to non-conjugated redox-active polymers. **C.E. Van Pelt**, B. Jenkins, S. Maurya, E. Pentzer

11:30. Additive manufacturing of polychloroprene using thiol-ene chemistry. **L. Moore**, K. Smith, V.Q. Saludo, J. Marcischak, K.B. Ghiassi

11:45. Microbial production and chemical modification of designer polyhydroxyalkanoates for recyclable, reprocessible, and biodegradable rubber applications. **R. Clarke**, N. Rorrer, G. Beckham

Catalysis in Plastic Recycling and Upcycling

Sponsored by CATL, Cosponsored by ENVR, PHYS and PMSE

Cellulose and Other Carbohydrate Materials for Water and Air Purification

Sponsored by CELL, Cosponsored by CARB, PMSE and POLY

SUNDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon B

Next Generation Structural Nanocomposites *Nanotubes in Structural and Multifunctional Composites*

M. B. Dickerson, O. McNair, D. A. Savin, R. Sweat, *Organizers, Presiding*

2:00. Advanced multifunctional composites by novel processing/manufacturing. **L.J. Treadwell**

2:30. Structure-property relationships of vitrimer nanocomposites for multifunctional smart coatings. **L. Taussig**, A.A. Advincula, M. Carey, H. Koerner, P.A. Mirau, J. Brackenridge, M. Anayee, P. Barnett, D. Nepal

2:50. Elasto-plastic deformation of hydrogen-bonded glassy polymer nanofibers. A. Gaikwad, **P.V. Kolluru**

3:10. Data-driven prediction of mechanical properties of carbon nanostructures, MXenes, and polymer composites. **H. Heinz**, J.J. Winetrou, I. Armstrong, Z. Li, Q. Zhao, Y. Xu, Y. Wang

3:40 Intermission.

4:00. Influence of carbon nanotubes on poly (ether ketone ketone) crystallization kinetics and resulting multiscale semi-crystalline morphology. **N. Enos**, J.S. Wiggins

4:30. Boron nitride nanomaterials and composites for use in high voltage insulation. **K. Vailonis**, D. Santiago, M. Lizcano, T. Sabo

4:50. Characterization of carbon nanotube/polystyrene composites prepared via microwave-induced polymerization. **H. Agamasu**, M. Thomas, A. Hulette, J.C. Dicesare, R.L. Quirino

SUNDAY AFTERNOON

New Orleans Marriott
Galerie 5

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*
H. Hunter, N. Kolishetti, *Presiding*

2:00. Fabrication of high-conductive Polyaniline composites by the 3D-Printing process with potential application as a strain sensor. K.Y. Patintildeo Jaimes, **J.H. Lambert**, R. Advincula

- 2:15.** Synthesis of hydrolytically degradable block copolymer nanoparticles via polymerization-induced self-assembly in aqueous media. **M. Farmer**, O. Musa, S.P. Armes
- 2:30.** Antibacterial organic materials prepared by a versatile and easy process. **B. Caron**, C. Lefay, Y. Guillaneuf, M. Maresca, M. Lemesle, A. Leroux, J. Coussegal
- 2:45.** Nanomedicine technologies to tackle neuroHIV and associated neuroinflammation. **N. Kolishetti**
- 3:00.** Polymer-drug conjugate for on-demand local anesthesia. **W. Zhang**
- 3:15.** Exploring hydrogel-based reversible adhesives for structural applications. **J. Kopatz**, K. Ghosh, M. Kaboolian, M. Murphy, E. Larkin, C. Roberts
- 3:30.** Responsive microgel-based systems for myriad applications. **M. Serpe**
- 3:45** Intermission.
- 4:00.** Polyelectrolyte-encapsulated graphene-nylon microcapsules for osmotic water treatment. **B. Ferland**, D.H. Adamson
- 4:15.** Graphene-based elastic, conductive hydrogel sponge. **N. Bandara**, D.H. Adamson
- 4:30.** Aptamer modified stimuli-responsive microgel based optical sensors for cannabinoid sensing. **N. Balasuriya**, M. Serpe
- 4:45.** Graphene Polyamide Membrane for *in situ* Electrochemical CO₂ reduction in the presence of a metal catalyst. **R. Anthoni Pererage**, J. LIU, D.H. Adamson
- 5:00.** Single-walled carbon nanotube chiral selectivity exhibited by commercially available hydrogels of varying composition. S. Zanaoni, B.P. Watts, **K.C. Tvrdy**
- 5:15.** Optimizing microgel-based etalon responses for point-of-need sensors. **H. Hunter**, M. Serpe
- 5:30.** Covalent organic frameworks (COFs) for lithium and magnesium separation from salt water. **A. Altaf**, A. Khosropour, A. Zadehnazari, A. Abbaspourrad

SUNDAY AFTERNOON

New Orleans Marriott
Galerie 6

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*

P. Jankoski, M. D. Thum, *Presiding*

2:00. Therapeutic potential of versatile butyric acid-based self-assembling polymer prodrug in various diseases. **B. Shashni**, Y. Nagasaki

2:15. Synthetic glycopolymer-based hydrogels: A weak dynamic network for drug delivery. **X. Wang**, L. Kemp, C. Hudson, S.E. Morgan

2:30. 3D printed Biosponge adsorbers for capturing chemotherapy drugs before they spread through the body. **H. Oh**

2:45. Supramolecular polymers as self-assembling tissue scaffold following skin injury. **P. Jankoski**, L. DiMartino, J. Dennis, S. Trinh, C.J. Fortenot, O.D. Warren, A. Smith, T. Clemons

3:00. Reinforcement and actuation behavior of poly(ionic liquid) ionogels for ionic soft actuators. **K. Foley**, S. Cockmon, A. Carrillo, K. Walters

3:15. Withdrawn

3:30. Flame-retardant nylon/tannic Acid Composite nanofibers. **M.D. Thum**, M. Tighe, N. Weise, N. Hoffmann, R. Mosurkal, J.A. Orlicki, J. Lundin

3:45 Intermission.

4:00. Towards high efficiency photon upconversion in raft-derived PMMA copolymers. **S.T. Stanciu**, S. Raišys, K. Kazlauskas, X. Gu, Y.C. Simon

4:15. Synergistic effects of multicomponent insect repellent-infused physical gels. **J. Jimenez**, M.D. Thum, A. Fulton, J. Cilek, J.A. Orlicki, J. Murphy, N. Hoffman, M. Perry, R. Casalini, J. Lundin

4:30. Developing energy absorbing polyurethane aerogels using modeling and experimental approaches. **T.L. Thornell**, W.A. Pisani, A. Bowman, M. Ucak--Astarlioglu, D. Wedgeworth

4:45. 4D printing of elastomers with multi-objective Bayesian optimization for personalized biomedical device fabrication. **A. Mahjoubnia**, J. Lin

5:00. Deployment of dental disinfection agents via 3D-printed or injected Pluronic-based hydrogels. **A. Sloutski**, A. Mahmoud, S. Anantapantula, K. Feng, S. Walker, J. Cymerman, T. Manders, M. Simon, M. Rafailovich

5:15. Withdrawn

SUNDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon A

Polymers That Are Non-Linear

Financially supported by Tosoh Bioscience

S. M. Grayson, D. Savin, *Organizers*
A. M. Evans, M. D. Giles, *Presiding*

2:00. Exploiting multivalent interactions at polymer brush interfaces for biomolecular recognition. **A. Sanyal**

2:30. Thermal transport in two-dimensional polymer systems. **A.M. Evans**

3:00. Theranostic nanoparticles via amphiphilic dendritic hybrid block copolymers (HBCs). **D.L. Watkins**

3:30 Intermission.

3:50. Stimuli-responsive heterografted multicomponent molecular bottlebrushes synthesized by a click grafting-to method. M.T. Kelly, **B. Zhao**

4:20. Engineering molecular architecture of antimicrobial peptide-polymer conjugates. **Z. Cui**, M. Crawford, B. Rumble, M. Krogh, E. Brna, M. Hughes, R. Letteri

4:40. Stabilizing Frank-Kasper A15: Innovative approach via AB_x miktoarm copolymers. **K. Watanabe**, D. Chen, Y. Zhu, G.H. Fredrickson, C.M. Bates

5:10. Strategic architectural design of acid cleavable amphiphilic block copolymers for cancer targeted drug delivery. **A.S. Kulkarni**, B. Derbigny, D.L. Watkins

SUNDAY AFTERNOON

New Orleans Marriott
Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

B. Anasori, L. Beagle, M. Katiyar, J. Kennedy, A. Thakur, *Organizers*
H. Fang, A. Vojvodic, *Presiding*

2:00 Introductory Remarks.

2:05. Direct Synthesis of Two-Dimensional Metal Chalcogenides Through Molecular Preorganization. **S. Mathur**

2:35. Withdrawn

2:50. Post-synthetic modification of imine-based covalent organic frameworks for sensors. **L.D. Tran**, L. Baldwin, N. Glavin

3:05. Impact of functional polymers on electronic properties of graphene and nanoscale materials. **T. Emrick**

3:35. Polymer interfaces with controlled Dispersities. **E. Benetti**

3:50. Guardians of steel: Harnessing ceria@talc-8-hydroxyquinoline modified polyurethane coatings for unyielding corrosion protection of steel. **S. Habib**, A. Qureshi, A. Shakoor, R. Kahraman, E.M. Ahmed

4:05 Intermission.

4:15. Geometric assemblies of 2D nanosheet-polymer composites. **S. Yang**

4:45. Physical and chemical bonding at the interface of polymer and 2D material towards stronger biodegradable nanocomposites. **V. Verma**, A.K. Sonker, M. Belay, R.K. Nagarale

5:00. Bottom-up synthesis of two-dimensional transition metal carbides (MXenes). **M. Anayee**, R. Rao, N. Glavin, B. Maruyama, D. Nepal

5:15. 2D nanocomposites and dynamic networks: From polymer films to 3D printing. **R.C. Advincula**

5:30. Light-responsive Mxene/gel via interfacial host-guest supramolecular bridging. **Y. Lin**, J. Chen

5:45. Adsorption of aldehyde-functional diblock copolymer spheres onto surface-grafted polymer brushes via dynamic covalent chemistry enables friction modification. **E.C. Johnson**, S. Varlas, O. Norvilaite, T.J. Neal, E.E. Brotherton, G. Sanderson, G.J. Leggett, S.P. Armes

SUNDAY AFTERNOON

New Orleans Marriott

Galerie 3

Adaptive Materials from Dynamic Polymer Networks and Composites

Dynamic Polymer Networks and Additive Manufacturing

Financially supported by Tosoh Bioscience LLC; Advanced Composites and Hybrid Materials; TA Instruments – Waters

L. Baldwin, C. Evans, M. J. Webber, *Organizers, Presiding*

2:00. Facile preparation of tunable dynamic polymer networks. **P.T. Getty**, C.M. Bates, C.J. Hawker

2:15. Bio-based reversible covalent networks and their application in soft robotics. J. Mangialetto, M. Thys, A. Costa, S. Terry, N. Van den Brande, J. Brancart, B. Vanderborght, **G. Van Assche**

2:35. Synthesis, photochemical uncaging, and network formation in vicinal frustrated lewis pair polymers. **N. Romero**, E.A. Latif, J.D. Hilgar

3:00. Design strategies for tuning the properties of adaptive materials. **C.M. Bates**

3:25. Upcycling with dynamic bonds. **J.A. Kalow**

3:50 Intermission.

4:05. Towards an improved understanding of network fracture. **B.D. Olsen**

4:30. Dynamic covalent chemistry in Photoresin design for smart, functional 3D printing. **R. Smaldone**

4:55. Reversible photocrosslinking of polymer networks for sustainable 3D printing. M.C. Burroughs, E.L. Quirk, B.M. Wirtz, T. Schloemer, D. Congreve, **D.J. Mai**

5:20. Depolymerizable δ -lactone based polymers for recyclable vitrimers and 3D printing. L. Yue, **J. Qi**

5:45. Continuous polymer synthesis and manufacturing of polyurethane elastomers enabled by flow chemistry. **J.L. Rapp**, D. Anstine, M.A. Borden, K. Yun, O. Isayev, F.A. Leibfarth

SUNDAY AFTERNOON

New Orleans Marriott

Galerie 4

Biological and Biologically Inspired Adhesion: Enhanced Bonding at the Interface Between Life and Materials Science

Financially supported by Army Research Office

F. Cedano, H. Hess, *Organizers*

M. T. Kozlowski, J. K. Montclare, *Organizers, Presiding*

2:00. Bioinspired, fast, strong, and reversible hydrogel adhesives. **S. Yang**

2:30. Nonionic coacervates as photocurable underwater adhesives. **A. Narayanan**, X. Liu, A. Joy

2:45. New functionalities - new opportunities: the thiol-catechol connectivities (TCCS) inspired by nature and the key to (re)new(able) adhesives. **H. Boerner**

3:00. Development of antiviral polymers focused on Covid abatement. **D. Spivak**, V.N. Chouljenko, K. Kousoulas

3:15. Engineering biointerfaces for building tissue integration. **H.H. Lu**

3:45 Intermission.

4:15. Hemostatic tough adhesives rapidly seal tissue and control hemorrhage during surgery. **B. Freedman**

4:45. Cellulose acetate nanofibers membranes for controlled electrical environment for cells. **U. Stachewicz**

5:00. Underwater application of adhesives utilizing microcapsules on complex biofouled surfaces. **R. Messersmith**

5:15. Multi-functional acrylate chemistry for adhesion to mineralized biological tissues. **R. Xu**, Y. Luo, K.H. Vining

5:30. Bioinspired complex coacervate-based adhesives. **M. Kamperman**

SUNDAY AFTERNOON

New Orleans Marriott

Regent

PMSE Centennial: Future Leaders of Polymeric Materials Science and Engineering

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida.

M. Golder, *Organizer*

K. Burke, H. Kim, A. Roy, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05. Stereoselective cationic polymerization: Method development and computationally guided mechanistic studies. **C. Sorensen**, F.A. Leibfarth

2:30. Structure-property relationships of non-isocyanate polyoxazolidinones. **A.R. Wong**, A. Pal, J.R. Lamb

2:55. Development and understanding of fused cyclobutane polymechanophores. **M. Horst**, Y. Xia

3:20 Intermission.

3:35. Processing and properties of surface-localized nanocomposites as functional materials for space applications. **E. Ryan**, Z. Seibers, J.R. Reynolds, M. Shofner

4:00. Flow-induced crystallization in mixed polyolefins. **M.L. Coughlin**, D.E. Huang, A. Kotula, K. Migler

4:25. From polymers to power: Vat photopolymerization additive manufacturing of functional materials for energy, environment, and health applications. **M.A. Saccone**

4:50 Intermission.

5:05. Towards “Life-Like” Materials: Invoke soft material behavioral complexity from simplicity. **S. Li**, J. Aizenberg

5:30. “Glassy elastomers”: Reversing large plastic deformations in glassy polymer networks enabled by hydrogen bonding. **C.J. Reese**

5:55 Concluding Remarks.

Catalysis in Plastic Recycling and Upcycling
Sponsored by CATL, Cosponsored by ENVR, PHYS and PMSE

Cellulose and Other Carbohydrate Materials for Water and Air Purification
Sponsored by CELL, Cosponsored by CARB, PMSE and POLY

MONDAY MORNING

New Orleans Marriott
Galerie 3

Adaptive Materials from Dynamic Polymer Networks and Composites
Hydrogels & Biomaterials

Financially supported by Tosoh Bioscience LLC; Advanced Composites and Hybrid Materials;
TA Instruments – Waters

M. J. Webber, *Organizer*
L. Baldwin, C. Evans, *Organizers, Presiding*

8:00. Double cross-linked hydrogels in microfluidics: A perfect match for catch and release. C. Jiao, D. Appelhans, B. Voit, **J. Gaitzsch**

8:15. Bioinspired peptide-polyurea hybrids as a platform for injectable hydrogels. **J.A. Thomas**, Z. Hinton, L. Korley

8:30. Linking molecular mechanisms to bulk rheology and assembly in dynamic covalent polymer networks. **A. Kuentler**

8:45. *In situ* mineralization in metal-coordinated polymer hydrogels: Progress, challenges and opportunities. **N. Holten-Andersen**

9:10. Effect of polymer architecture on flow behavior of dynamic covalent hydrogels. **A. Rosales**

9:35. Dynamic-covalent polymer networks with glucose-sensing bonding. **M.J. Webber**

10:00 Intermission.

10:15. Self-assembled living materials with dynamic polymer networks. **S. Sim**

10:40. Entropy-driven dynamic biomaterials enabling innovations in drug and cell delivery. **E.A. Appel**

11:05. Designing materials at the interface of nanotechnology and polymer chemistry. **E.S. Seo**

11:20. Bio-based polymethacrylate vitrimers with tunable microstructure and shape-memory effect. **F. Asempour**, E. Laurent, Y. Ecochard, M. Maric

11:35. Programmably degradable hydrogels for functional biomolecular release. **W. Shi**, X. Ying, X. Sheng, M. Finn

MONDAY MORNING

New Orleans Marriott
Galerie 4

Biodegradable Polymers, Biodegradation of Polymers, Bio-Derived Polymers: Sustainable Chemistry Drive to a Better Life

Bio-derived Polymers

H. Cramail, C. Shen, *Organizers*
C. Letko, *Organizer, Presiding*

8:00 Introductory Remarks.

8:05. Development of sustainable and recyclable polymers from lignin and CO₂. **A. GHORAI**, H. Chung

8:25. Synthesis of close-loop recyclable polyesters and thermoplastic elastomers. **Z. Li**

9:10. Formation of a sustainably sourced adhesive based on mussel chemistry capable of achieving high strengths. **C. Westerman**

9:30. Poly(aminoamides) as a new class of degradable high-strength CO₂-based polymers. **J.M. Eagan**

9:50 Intermission.

10:05. Polyhydroxyalkanoates: Production, applications and end-of-life. **S. Pratt**

10:50. Broadening the design space of polyhydroxyalkanoates via coupled architectural and stereomicrostructural engineering. **M. Gace**, E.Y. Chen

11:10. Breaking down the unbreakable: Sustainable shifts in polymer thermoset design. **D.L. Patton**, J. Aguinaga, P. Bhunia, J. Davis, S. Jha, E.P. Rose, C.A. Sarantes

11:30. Reusable antibacterial bio-based co-polymers from recycled waste grease. **M. Kazem-Rostami**, V. Ryu, X. Zhang, K. Wagner, C. Wu, X. Fan, R. Ashby, H. Ngo

MONDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon B

Next Generation Structural Nanocomposites

Novel Nanoparticle Composites and Biological Applications

M. B. Dickerson, O. McNair, D. A. Savin, R. Sweat, *Organizers, Presiding*

8:00. Polymerization-induced nanoparticle ordering in nanocomposites. **R. Hickey**

8:30. Mixing rods and discs: Strong nanocomposites from aqueous hybrid liquid crystals. **T. Dingemans**, M. Hegde

9:00. Recyclable, reshapable, repairable and fire-resistant high-performance carbon fibers-biobased epoxy composites. **A. Mija**, R. Dinu, O. Damiano, U. Lafont

9:30. Sustainable epoxidized linseed oil thermosets for structural and Composite High-Performance Materials. **R. Dinu**, U. Lafont, O. Damiano, A. Mija

9:50 Intermission.

10:10. Hierarchical assembly of peptoids on van der Waals materials. **S. Zhang**, W. Zhou, R. Zheng, C. Chen, J. De Yoreo

10:30. Withdrawn

10:50. Transport of silver from silver zeolite-enabled packaging. **L. Adhikari**, T.V. Duncan, M. Sayeed, R.R. Mudireddy

11:10. Advanced nanocomposite fabrication techniques for the anti-biofilm coatings in the biomedical and wastewater treatment applications. **M.K. Hassan**, L. Santo, D. Bellisario, F. Quadrini, M. Hassiba, S. Zughaier

MONDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon A

Polymers That Are Non-Linear

Financially supported by Tosoh Bioscience

S. M. Grayson, D. Savin, *Organizers*
Y. D. Getzler, J. Pribyl, *Presiding*

8:00. Comparison of the stability of perpendicular lamellae formed by linear block copolymers and their cyclic analogs. **R. Kumar**, W. Yang, H. Ashbaugh, J. Albert

8:20. Formation of cyclic polymers via nickel-catalyzed reductive coupling of dibrominated linear precursors. **E.S. Tillman**

8:50. Topology and dispersity: Additional parameters regulating the properties of functional polymer interfaces. **E. Benetti**

9:20. Recent advances in synthesizing cyclic polymers from vinyl monomers. **J. Pribyl**, M. Bronder, E. Sullivan

9:50 Intermission.

10:10. Kinetics of the heterogeneous polymerization of glycidol with $B(C_6F_5)_3$ in toluene: The formation of branched cyclic-core polyglycidol. E. Gomez Urreizti, X. Gastearena, A. Lam, J. Matxain, **F. Barroso**

10:40. Unexpected discoveries during the ring-expansion polymerization of caprolactone derivatives. **Y.D. Getzler**

11:10. ZENO: A general methodology for computationally estimating the solution characterization properties of topologically complex polymers. **J.F. Douglas**

MONDAY MORNING

New Orleans Marriott

Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

B. Anasori, L. Beagle, M. Katiyar, A. Thakur, *Organizers*

J. Kennedy, *Organizer, Presiding*

Z. Fakhraai, *Presiding*

8:00 Introductory Remarks.

8:05. Understanding the role of confined water in $Ti_3C_2T_x$ MXene stability. **Z. Fakhraai**, H. Fang, A. Thakur, A. Zahmatkeshsaredorahi, V. Rad, A. Arabi Shamsabadi, M. Soroush, X. Xu, B. Anasori

8:35. Learnings from interfaces of graphene with gel polymer electrolytes for miniaturized supercapacitors and bioelectrodes. **F. Iacopi**

8:50. Inversion of graphene stabilized emulsions with polyphenols to form electrically conductive graphene coated polymer spheres. M. Joyce, S.T. Mcdermott, K. Umamiya, **D.H. Adamson**

9:05. Synthesis, characterization and application of two-dimensional materials and covalent organic frameworks nanocomposites. **J. Lou**

9:35. Polylysine functionalized calcium phosphate graphene with antibacterial and osteoinductive properties. **J. Orlando**, S.A. Sydlik

9:50. Optical performance and growth of $Ti_3C_2T_z$ /polyelectrolyte layer-by-layer heterostructures. **N. Neal**, M. Green, M. Radovic, J.L. Lutkenhaus

10:05 Intermission.

10:15. Defect control in 2D materials: From functionalization and metal deposition to bio-applications. **M. Terrones**

10:45. New processing strategies for nanocomposites: Combining covalent adaptable networks and thermosets with low-dimensional fillers. **A.J. Magenau**

11:00. Investigation of conjugated sulfonamide materials as binders for organic lithium-ion batteries. **J. Liu**, D. Seferos

11:15. Stratified 2D-Nanofiller-based polymer nanocomposites for high density capacitive energy storage applications. **N.R. Pradhan**, S. Bera, R. Thantirige, M. Singh, J. Wu, D. Raghavan, A. Karim, E.C. Davidson

11:30. Efficient delamination and dispersion of 2D MXenes in organic solvents for fabrication of polymer nanocomposites. **J. FitzPatrick**, Y. Gogotsi

11:45. Ultrathin films of MXene nanosheets decorated by Ionic branched nanoparticles with enhanced energy storage stability. **P. Flouda**, A. Inman, M. Gumenna, D. Bukharina, V. Shevchenko, Y. Gogotsi, V.V. Tsukruk

MONDAY MORNING

New Orleans Marriott
Galerie 5

Department of Defense Symposium on Excellence in Polymeric Materials Science and Engineering
Advances and Opportunities in Charge Transport

Financially supported by UES Inc

K. Caster, R. Lambeth, M. Laskoski, D. Nepal, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Polymeric materials and Aerospace in 2030: Inventing the stuff that makes the future. **R.A. Vaia**

8:40. Intrinsically porous organic polymers: Design and application in sensing, high strength materials and catalysis. **T.M. Swager**

9:05. Solid-state charge and spin transport in nonconjugated radical polymers. **B.W. Boudouris**

9:30. Pi conjugated electroactive polymers for solid state and redox active applications. **J.R. Reynolds**

9:55 Intermission.

10:05. Chiral polymer photonics: Chirality-controlled optical and magneto-optical functions to impact DoD technologies. **P.N. Prasad**, J. Jojo, G. He, A. Baev

10:30. Light as a stimulus to controllably program mechanical and optical heterogeneity in soft materials. **Z.A. Page**

10:50. Narrow bandgap conjugated polymers with strong correlations and open-shell electronic structures: Towards new phenomena and emergent technologies. **J.D. Azoulay**

11:10. Color-changing optical devices enabled by ion-mediated deformation of polymer networks. **T.J. White**

11:35. Explorations of photonic and opto-electronic materials with DoD support. **S. Marder**

MONDAY MORNING

New Orleans Marriott
Galerie 6

Functional Conjugated Polymers: Design, Synthesis, Characterization, and Emerging Applications *Design and Synthesis*

L. Fang, X. Gu, L. Kayser, *Organizers*
D. Baran, *Organizer, Presiding*
M. Matta, *Presiding*

8:00. Design strategy and applications of polyaniline derivatives. **C.N. Scott**, H. Giri, M.N. Almtiri, R.W. Wahalathantrige Don

8:25. Unexpected polymerization kinetics during the synthesis of a glycolated polythiophene. **C.K. Luscombe**

8:50. Breaking the solution aggregation of conjugated ladder polymers with strained and bulky side chains. **J. Yang**, g. ma, X. Gu, L. Fang

9:05. Suzuki-Miyaura catalyst-transfer polymerization: Studies toward better mechanistic understanding. **M.T. Howell**, E.E. Nesterov

9:20. High-performance n-type polymer semiconductors for organic electronics. **X. Guo**

9:45 Intermission.

10:15. Universal Suzuki catalyst-transfer polymerization for precision synthesis of donor/acceptor conjugated polymers. **T. Choi**

10:40. Molecular Dynamics simulations: A computational microscope to understand side chain trends in conjugated polymers. **M. Matta**

11:05. Synthetic engineering of graphene nanoribbons from bottom-up approaches. **A. Keerthi**

11:20. Synthesis of poly(*p*-phenylene vinylene)s via stereoselective ring-opening metathesis polymerization: Kinetics, mechanism, and applications in nonlinear spectroscopy. **J.L. Nicholson**, S.J. Kempel, T. Hsu, Q. Michaudel

11:35. Exploring the potential of polydiacetylenes in organic electronics. **S. Rondeau Gagne**

MONDAY MORNING

New Orleans Marriott

Regent

PMSE Centennial: Future Leaders of Polymeric Materials Science and Engineering

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida.

M. Golder, *Organizer*

K. Burke, H. Kim, A. Roy, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Development and assessment of a graphene oxide-based sensor on a silicon substrate for wearable human motion monitoring. **E. Erfanian**, Y. Wang, D.A. Weitz, U. Sundararaj

8:30. Applying materials science to RNA delivery. **G. Tilstra**, O. Khan

8:55. Enhancing stability and efficacy of Trichoderma bio-control agents through biopolymer layer-by-layer encapsulation for sustainable plant protection. **S.T. Velasquez**, K. Borup Løvschall, B. Kowalska, M. Ptaszek, A. Jarecka, M. Szczech, F.R. Wurm

9:20 Intermission.

9:35. Perylene diimide polymers as trailblazers for elucidating redox-active behavior in organic materials. **J. Kim**, C.N. Gannett, D. Tirtariyadi, Y. Shirke, H.D. Abruna, P.J. Milner

10:00. Fundamentals of hydraulic liquid transport in ion exchange membranes. **R. Sujanani**, K. Reimund, K. Gleason, B.D. Freeman

10:25. Tuning performance and CO₂-induced plasticization resistance in polymers with side-chain porosity. **K. Storme**, S. Qian, Y. Wu, S. Lin, T.M. Swager, Z.P. Smith

10:50 Intermission.

11:05. Advanced mass analysis characterizations of complex polymer systems. **B.A. Suslick**, J. Moore

11:30. High-throughput experimentation and compositional screening of polymer-based semiconductor/insulator blends for organic device applications. **R. Venkatesh**, A. Liu, H. Zhao, J.C. Meredith, M. Grover, E. Reichmanis

11:55 Concluding Remarks.

MONDAY LUNCH HOUR

New Orleans Marriott
Galerie 2

12:00 – 2:00. PMSE Centennial Panel Discussion: The Future of Plastics

Moderator: Craig J. Hawker, University of California, Santa Barbara; Kathryn L. Beers, National Institute of Standards and Technology; Bradley D. Olsen, Massachusetts Institute of Technology; Theresa M. Reineke, University of Minnesota; Florian Schattenmann, Cargill; and Natalie Stingelin, Georgia Tech. ***Boxed lunches provided while available.***

MONDAY AFTERNOON

New Orleans Marriott
Studio 3 – 10

PMSE Centennial Poster Session for Graduate Students

Financially supported by National Science Foundation

A. Figg, B. Singhi, C. Thomas, R. Yang, *Organizers*

1:30 M1. Bioactive surfaces through affinity tag protein-polymer conjugation. **A. Necaïse**, M. Rahman, T. Clemons

1:30 M2. Synthesis of Linear and cyclic poly(hydroxypivalic acid). **A. Nadeem**, M. Redding, S.M. Grayson

1:30 M3. Poly(cannabidiol)s; antioxidant polyesters derived from natural materials for corrosion protection. **A. Pollock**

1:30 M4. Overcoming thermal instability in organic solar cells using cleavable sidechains. **A. Bates**, H. Zhao, J.J. Shanahan, W. You, X. Gu

1:30 M5. Preparation and studies of New difunctional spirocyclic epoxy monomers. **A. Kelly**, D. Klosterman, A.B. Morgan, V.A. Benin

1:30 M6. Polypropylene-based chemically recyclable engineering polyolefins. **A. Tiiara**, I. Luzinov

1:30 M7. Chemically recyclable polyolefin-based ester-linked polymers. **A. Tiiara**, I.A. Luzinov

1:30 M8. Polymeric blend exploration for tendon manufacturing in tendon replacement therapy. **A. Nguyen**, D. Dabkowski, C. Patten, R. Advincula, D. Anderson, M. Dhar, D. Crouch, S. Newby, E. Ozmen

1:30 M9. Linear-dendritic polymers via thiol-yne "click" chemistry. **A. Miles**, A. Huskey, A. Nuzzo, S.M. Grayson

1:30 M10. Core-shell hybrid filaments for 3D printing via fused filament fabrication. **B. Daichendt**, P. Brown, I.A. Luginov

1:30 M11. Influence of interfacial anchoring on properties of structures 3D printed using core-shell hybrid filaments. **B. Daichendt**, I.A. Luginov, P. Brown

1:30 M12. 3D printed cellulose nanocrystal coatings with infra-red reflectance: Continuous to discrete chiral films. **B. Dimitrov**, D. Bukharina, V.V. Tsukruk

1:30 M13. Efficient assembly of genes that encode repetitive fusion protein biomaterials. **B.M. Wirtz**, D.J. Mai

1:30 M14. Analysis of poly(ethylene glycol) in artifact conservation of the *vasa*, a 17th century shipwreck. **B. Curole**, M. Sahlstedt, S.M. Grayson

1:30 M15. Deep eutectic solvents utilized in high-temperature HIPE formation, stabilized with graphite/graphene. **C.E. Gouveia**, D.H. Adamson

1:30 M16. Synthesis of chelating polymers via raft polymerization of activated ester monomers and post-polymerization functionalization. **C. Yeary**, P.R. Calvo

1:30 M17. Responsive polymeric capsules as feedstocks for creating functional solid-liquid composites. **C. Hsieh**, L. AlMahbobi, M. Avais, P. Wei, Y. Wang, E. Pentzer

1:30 M18. Fabrication of conductive polymers for sensing applications. **C.T. Gordon**, T.M. Swager

1:30 M19. Thermodynamic insights into rare-earth element chelation by metal-binding oligomers. **C.M. Gallagher**, T.D. Ermolaev, M.D. Schulz

1:30 M20. Development of bio-based organogels for cosmetic and personal care applications. **C. Lemasney**, J. McLaughlin, E. Kinaci, G. Storti, M.J. Fevola, G.R. Palmese, J.F. Stanzione

1:30 M21. Ionically-crosslinked polyelectrolyte treatment for fire retardant polyester. **D.L. Smith**, N.A. Vest, M.O. Convento, M.D. Montemayor, J.C. Grunlan

1:30 M22. Modifying bismaleimide matrices via inclusion of additional crosslinking functionalities. **D. Walker**, J.S. Wiggins

- 1:30 M23.** Versatile light-mediated synthesis of degradable bottlebrush polymers using α -lipoic acid. **D. Lee, H. Wang, R. Verduzco**
- 1:30 M24.** Copolymerization kinetics of vinylbenzyl trioctyl phosphonium chloride and n-butyl acrylate and the ionomer's effects on its comonomer's kinetics. **E. Tong**
- 1:30 M25.** Biodegradable polymers from sustainable sources for addressing plastic waste in oceans and landfills. **E. Enebeli, Y. Tang, J.D. Smith, F. Khakzad, M. Robertson**
- 1:30 M26.** Modulation of thermal conductivity in porous 2D-covalent organic frameworks. **E. Tiernan, Z. Hirani, J.A. Tomko, L. Kuo, N. Bradshaw, N. Williams, D. Burke, A.M. Evans, M.C. Hersam, W.R. Dichtel, P. Hopkins**
- 1:30 M27.** Biobased building blocks for rigid, sterically congested epoxy-amine thermosets. **E.P. Rose, C. Donaldson, D.L. Patton**
- 1:30 M28.** Additive manufacturing of polymer-derived ceramics with novel thermal NIR laser stereolithography. **E. Wang, M. Hickner**
- 1:30 M29.** Sulfonated lignin nanocomposites as ion-exchange membranes in a redox flow battery. **F. Brito, P.S. McMichael, A. Whitbeck, E. Gyenge, J. Foster**
- 1:30 M30.** Enhancing selective copper recovery with chelating group functionalized membranes. **F. Chen, e. deemer, R. Verduzco**
- 1:30 M31.** Surfactant-assisted on-acid interfacial synthesis of conjugated polymer membranes for organic solvent nanofiltration. **F. Abani, L. Fang**
- 1:30 M32.** Decoration of cellulose nanocrystals with a photo-sensitive mesogen for stimuli-responsive stretchable optics. **F.K. Masese**
- 1:30 M33.** High-performance polyimides for continuous carbon fiber composites. **G. Nayyar, C.W. Weyhrich, T. Long**
- 1:30 M34.** Mechanochromic fluorescent polymer materials derived from quinacridone. **G. Yu**
- 1:30 M35.** Sustainable and degradable pressure-sensitive adhesive and soft Superelastomer prepared through metal-free polymerizations. **h. jeong, H. Lee, J. shin**
- 1:30 M36.** Coaxial electrospun conjugated polymer fibers with enhanced stretchability and reversibility. **H. Ahmad, M. Britton, M. Gangishetty, S. Kundu**
- 1:30 M37.** Desalination pervaporation performance of sulfobetaine-modified poly(arylene ether sulfone) copolymer dense membranes. **H. Mithaiwala, M. Green**

- 1:30 M38.** Hydrophobic surface engineering of individualized cellulose nanofibers toward reinforced thermoplastic elastomer nanocomposites. **H. Lee**, h. jeong, J. shin
- 1:30 M39.** Integration of reactive polymers and strain sensors for chemical sensing. **H. Seo**, J. Lim, J. Heo, J. Ryu
- 1:30 M40.** Photoinitiated polymer networks for drug delivery systems using thiol-ene click chemistry. **I. Hoffman**, D.Y. Son
- 1:30 M41.** Photophysics and heparin fluorescence sensing of poly(phenylene ethynylene) conjugated polyelectrolytes with phosphonium functionality. **I.J. Barboza Ramos**, K.S. Schanze
- 1:30 M42.** Design and synthesis of Polypentenamer-based bottlebrush elastomers. **J. Jang**, C. Leo, P. Santiago, J.G. Kennemur
- 1:30 M43.** Overview of broadband dielectric spectroscopy and its applications in 3D printing and polymer characterization. **J.H. Lambert**, Y. Wang, R. Advincula
- 1:30 M44.** Reaction injection molding of nonisocyanate polyurethane elastomers. **J. Nettles**, J.I. Sintas, K. Jin, T.E. Long
- 1:30 M45.** Bioderivable ester-containing epoxy-amine thermosets. **J. AGUINAGA**, L. Lewis, W. George, D.L. Patton
- 1:30 M46.** Digital image correlation of dynamic imine-benzoxazine networks. **J. Peyrefitte**, J.D. Arrington, E. Booker, L.J. Hamernik, J.S. Wiggins
- 1:30 M47.** Indium doped ZnO/polyaniline nanocomposites as a DMMP gas sensor at room temperature. **J. Rodrigues**, N. Shimpi
- 1:30 M48.** Engineered degradation rate of polyphosphazene-based layer-by-layer polymer coatings. **J.E. Brito**, J. Moon, R. Hlushko, A. Aliakseyeu, A.K. Andrianov, S.A. Sukhishvili
- 1:30 M49.** Beyond lattice matching: The role of hydrogen bonding in epitaxial nucleation of Poly(hydroxyalkanoates) by methylxanthines. **J. Bledsoe**, G. Crane, J.J. Locklin
- 1:30 M50.** Physico-chemical study of ammonium-based thin films for moisture-swing direct air capture. **K. Niimoto**, M. Green, K. Lackner
- 1:30 M51.** Dynamic modification of surface polymer brushes via stimulated Pani Electrodeposited: Si-pet-raft approach for tunable surface properties. **K.Y. Patino Jaimes**, E. Winn, R. Advincula
- 1:30 M52.** Polymers from epoxidized soybean oil using enzyme catalyst. **K. Elmore**, S. Kundu

1:30 M53. Alcohol-containing protein transduction domain mimics. **K.C. Koch**, T.M. Bizmark, G.N. Tew

1:30 M54. Bottlebrush polymer excipients for enhancing solubility of an oral drug. **K. Barr**, F.S. Bates, T.M. Reineke

1:30 M55. Impact of thermomechanical reprocessing on multilayer plastic packaging blend. **K. Zhan**, D. Meadows, L. Levy, R. Hou, T. RAHMAN, V.A. Davis, E.W. Davis, B. Via, Y. Peng

1:30 M56. Graphene-based electrically conductive flow through filter for organic dye adsorption. **K. Umaiya**, D. Varghese, D.H. Adamson

1:30 M57. Enhancing stability in organic field-effect transistors through innovative synthetic approach. **K. Thapa**

1:30 M58. Terpene-derived polyesters from verbenone: Polycondensation reactions to generate greener alternatives to petroleum-based thermoplastics. **L. Kennedy**, T.N. Thompson, M.D. Schulz

1:30 M59. High-performance quasi-2D perovskite solar cells based on self-assembled conjugated polyelectrolyte. T. Yang, H. Huang, Y. Chen, W. Nie, H. Tsai, **L. Wang**

1:30 M60. Loading of ionic liquid to beta-cyclodextrin for anti-corrosion additives in epoxy coating. M. Pasciolco, **L.L. Yasis**, W. Han, K. Yeung

1:30 M61. Antimicrobial polymer-based coating against non-enveloped MS2 bacteriophage: virucidal efficiency and potential inactivation mechanism. **L.L. Yasis**, S.H. Garcia, K. Yeung

1:30 M62. Integration of waste heat in direct air capture systems for sorbent regeneration and upgrading of carbon dioxide concentration. **L. Hamblin**, K. Lackner, M. Green

1:30 M63. Bioinspired structural color with multi-stimuli-responsiveness by tailored chemical design and processing of core-shell polymer particles. **L. Sieghardt**, R. Leiner, M. Gallei

1:30 M64. Sturdy compostable materials that degrade on command: A new approach to managing waste. **M. Srivastava**, I. Philip, S.R. Raghavan

MONDAY AFTERNOON

New Orleans Marriott

Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

B. Anasori, L. Beagle, J. Kennedy, A. Thakur, *Organizers*

M. Katiyar, *Organizer, Presiding*

A. Arabi Shamsabadi, *Presiding*

2:00 Introductory Remarks.

2:05. Abstract for Alan Dalton. **A. Dalton**

2:35. Hbn nanosheets as emulsifier and antimicrobial agents blended to soybean oil for paper packaging applications. **V. Kumar**, M. Rabnawaz

2:50. Study of the behaviour change in the optical and electronic properties of amine doped graphene oxide with various concentration of EDA as dopant. **M. Eliyas**, A. Rana

3:05. Recyclable and biodegradable smart electronic circuits on flexible substrates. **H.O. Shoyiga**, V.O. Nyamori, B.S. Martincigh

3:20. Nano-enhanced rubber composites: Pioneering 2D piezoresistive pressure sensors. **D.J. De Silva**, I. Wanniarachchi, T. Etampawala

3:35 Intermission.

3:45. 2D Flatland: From fundamental science to engineering applications. **A.X. Zhang**

4:15. Functionalized magnetic porous polymers for water remediation. **S. Saidi**

4:30. Friction and Super-lubricating properties of surface-attached hydrogels. **R. Maraula**, J. Ruhe

4:45. Efficient gas-barrier and flame retardancy of graphene-based waterborne coatings. **L. Maddalena**, T. Bensselfelt, J. Gomez, M.M. Hamed, L. Wagberg, A. Fina, F. Carosio

MONDAY AFTERNOON

New Orleans Marriott

Galerie 4

Biodegradable Polymers, Biodegradation of Polymers, Bio-Derived Polymers: Sustainable Chemistry Drive to a Better Life

Bio-degradation of Polymers

H. Cramail, C. Shen, *Organizers*

C. Letko, *Organizer, Presiding*

2:00 Introductory Remarks.

2:05. Degradation of biodegradable polymers in the lab and in the environment. **F. Burgevin**

2:25. Is designing for “biodegradability and compostability” a solution to plastic wastes?. **N. Ramani**

3:10. Radical ring-opening polymerization: A new route to vinyl polymer (bio)degradation?. **Y. Guillaneuf**

3:30. Biodegradation and thermal decomposition kinetics of sustainable high-performing cellulose-lignin films. **T.Z. Adesanya**

3:50 Intermission.

4:05. Biodegradability of polymeric compounds under controlled composting conditions using ISO 14855-2. **J. Thelusmond**, Y. Chai, V.C. Albright, M. LeBaron, J. Hu, G. Kozerski, N. Vallotton, S. Marty

4:50. Biodegradation of bioplastic drinking straws in the coastal ocean. **B.D. James**, Y. Sun, M. Izallalen, S. Mazumder, S.T. Perri, B. Edwards, J.S. de Wit, C. Reddy, C.P. Ward

5:10. Tailor-made biosynthesis of polyhydroxyalkanoates: Towards polymers with planned biodegradation. **S. Bruzaud**

5:30. Bioinspired and biodegradable redox-active polypeptides for sustainable energy storage. **S. Li**, K. Mohanty, S. Lim, S. Naquin, T. Nguyen, D. Tran, A. Easley, J.L. Lutkenhaus, K.L. Wooley

MONDAY AFTERNOON

New Orleans Marriott

Galerie 5

Department of Defense Symposium on Excellence in Polymeric Materials Science and Engineering

Advances and Opportunities in Multifunctional Composites

Financially supported by UES Inc

K. Caster, R. Lambeth, M. Laskoski, D. Nepal, *Organizers, Presiding*

2:00. Ionotronic Modulation of MXene Properties . **Y. Gogotsi**

2:25. Asking more from our networks: DoD partnerships catalyzing discovery of functional high-performance engineering polymers. **T.E. Long**

2:50. Applying soft-matter processing to ceramics: Polycarbosilanes as enabling precursors for additive manufacturing and hybrid materials. **M.B. Dickerson**, J.H. Delcamp, J.J. Bowen, C.M. Clarkson, J.F. Ponder, N.D. Posey, T. Pruyne

3:15. 3D printing of green metal-carbide composites for energy, bio-medicals, and sensor applications. **C.S. Tiwary**

3:35 Intermission.

3:50. Designing biomimetic composites with nonrandom disorder. **N. Kotov**

4:15. Reaction induced phase separation in advanced composite materials. **N. Clarke**

4:40. Investigation of network structure and mechanical properties in ROMP products. B. Trinh, **A. Boydston**

5:00. Interfaces in composite materials: A crucial aspect of material performance. **L.C. Henderson**

5:20. Carbon-carbon composites via *ortho*-Diyanyl arene (ODA) resins and custom fluoropolymers toward commercialization of defense materials. E.I. Borrego, G. Munoz, W.W. Johnson, K.M. Chamberlain, C.U. Pittman, **D.W. Smith**

MONDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon B

Next Generation Structural Nanocomposites *Ceramic Nanocomposites and Interface Dynamics*

M. B. Dickerson, O. McNair, D. A. Savin, R. Sweat, *Organizers, Presiding*

2:00. Developing advanced ceramic materials via preceramic polymer chemistry and an enhanced understanding of structure-property relationships. **N. Bedford**

2:30. Refractory ceramic nanocomposites using high Char polymers. **M. Laskoski**

3:00. Reprocessible co-continuous ceramic-polymer composites through cold sintering. **B.D. Vogt, P. Lai, E. Gomez**

3:30 Intermission.

3:50. Tailoring interfaces in composites to enhance performance and multifunctionality. **L.C. Henderson**

4:20. Functional coatings and composites: Novel polymers and processes and their applications in energetics, sensors, space and structures. **C.A. Crouse, Z. Yu, M. Baczkowski, J. Dunlap, J. Ethier, L. Baldwin, L. Tan**

4:50. Improving carbon reinforcing materials through surface modification, upgraded design, and sustainable, cost-effective production. **K.J. Mintz, J. Bourdeau, C. Wood, H. Stephanie, B. Jony, K. Gupta, S. Kumar**

5:20. Spatial control of dual nanoparticle populations orthogonally governed by Triptych block polymer templates. **M. Zhang, X. Li, C. Tang, M. Stefik**

MONDAY AFTERNOON

New Orleans Marriott

Regent

PMSE Centennial: Celebration of Success and New Frontiers in Polymeric Materials Science and Engineering

Advanced Manufacturing & Electronics

Cosponsored by WCC

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida

M. Grunlan, L. Korley, Q. Lin, *Organizers*

C. Soles, *Organizer, Presiding*

2:00. Foundational tools, techniques, and materials as outputs of the modern age of nanotechnology. **C.A. Mirkin**

2:25. Design and processing of conductive polymers structures for haptics and rehabilitation. **D.J. Lipomi**

2:50. Advanced manufacturing of polymers from nano- to micro- to macro for intelligence and energy efficiency. **S. Yang**

3:15. Future of polymer materials and additive manufacturing. **R.C. Advincula**

3:40 Intermission.

4:00. Award Address (ACS Award for Encouraging Women into Careers in the Chemical Sciences sponsored by the Camille and Henry Dreyfus Foundation). ACS encouraging women into Careers in the Chemical Sciences/Women Chemists Committee award address: Polymers in electronics - from patterning materials to stretchable devices. **E. Reichmanis**

4:25. Degradable conjugated polymers. **H. Tran**

4:50. Understanding the device stability through the lens of semiconductive polymer's chain dynamics. **X. Gu**

5:15. New frontiers in bottom-up polymeric materials and processes for high-precision nanopatterning. **R. Ruiz**

MONDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon A

Polymers That Are Non-Linear

Financially supported by Tosoh Bioscience

S. M. Grayson, D. Savin, *Organizers*
Y. D. Getzler, J. Pribyl, *Presiding*

2:00. Morphology, crystallization, and structure of comb polymers with poly(ethylene glycol) side chains. E. Matxinandiarena, M.I. Peñas, B. Curole, M. Krol, L.P. Fonseca, J. Ruokolainen, S.M. Grayson, **A.J. Muller**

2:30. Versatile and scalable synthesis of degradable bottlebrush polymers using dithiolane macromonomers. D. Lee, H. Wang, **R. Verduzco**

3:00. Solution and interfacial assembly of comb-shaped polypeptoid block or random copolymers. **D. Zhang**

3:30. Designing precision bottlebrush polymers with tailored ionic and hydrophobic side chains for enhanced solubilization and improved MR Imaging. **N.D. Ogbonna**, T. Oluwole, M. Dearman, C. Amofa, J. Lawrence

3:50 Intermission.

4:10. Additive manufacturing of super-soft siloxane-based elastomers. **K. Karimi Nikoo**, T. Long, R. Xie

4:30. Grafting density-dependent thermodynamic self-assembly of core-shell bottlebrushes for block copolymer nanotemplating. **E.M. Ness**, M. Kozody, C.J. Ellison, M.K. Mahanthappa

4:50. Complex nonlinear polymer architectures by ring opening polymerization of amino acid N-carboxyanhydride. **M. Barz**

5:20. Substituent effects on the cleavage efficiency of a phenyl ester mechanophore. **H.C. Spencer**, D. Spivak

MONDAY AFTERNOON

New Orleans Marriott
Galerie 3

Adaptive Materials from Dynamic Polymer Networks and Composites *Designing Responsive Dynamic Materials*

Financially supported by Tosoh Bioscience LLC; Advanced Composites and Hybrid Materials;
TA Instruments – Waters

C. Evans, *Organizer*

L. Baldwin, M. J. Webber, *Organizers, Presiding*

2:00. Control of viscoelasticity and ion transport in dynamic polymer networks using lithium salts. **S. Jang**, E.I. Hernandez Alvarez, C. Chen, B.B. Jing, C. Shen, P.V. Braun, A. Schleife, C. Schroeder, C. Evans

2:15. Coarse-grained molecular dynamics simulations on mechanical properties of dynamic bond elastomers with entropy/enthalpy-driven mechanisms. **Y. Yasuda**, S. Nakagawa, H. Houjou, N. Yoshie, H. Morita

2:30. Design of multi-functional intrinsic self-healing polymers with tailored hydrogen bonding. B. Li, A.P. Sokolov, P. Cao, **T. Saito**

2:45. Vitrimers nanocomposites: Thermomechanical and self-healing properties. **D. Nepal**

3:10. Production of highly-crystalline, imine-based 2D polymer films. **D.C. McLeod**, M.J. Dampf, F.L. Beyer, M.P. Ivill, M.G. Barnes, R. Lambeth, E.J. Sandoz-Rosado, E.D. Wetzel

3:35. Dynamic imine-epoxy hybrid materials: Bringing vitrimers to industry. **P. Taynton**, Y. Luo, H. Rubin

4:00 Intermission.

4:15. Linear viscoelasticity of polybutadiene vitrimers. **R. Ricarte**, S. Shanbhag

4:40. Dynamic covalent bond exchange for multimodal damping spectra. **C. Evans**

5:05. Anion-driven supramolecular polymers come and go under dissipative chemistry. **A.H. Flood**

5:30. Photoactivated reconfigurable living polymer networks. **S. Wei**, A. Nelson, L.M. Campos

5:45. Enhancing the equilibrium of dynamic Thia-Michael reactions through strategic modification. **A.E. Crolais**, N. Dolinski, S.A. Snyder, S.J. Rowan

MONDAY AFTERNOON

New Orleans Marriott

Galerie 6

Functional Conjugated Polymers: Design, Synthesis, Characterization, and Emerging Applications

Materials for Mixed Transport

D. Baran, L. Fang, X. Gu, *Organizers*

L. Kayser, *Organizer, Presiding*

A. Gumyusenge, *Presiding*

2:00. Semiconducting polymers for organic electrochemical transistors. **I. McCulloch**

2:25. Designing multifunctional mixed ionic-electronic conductive co-polymers. **A. Gumyusenge**

2:50. Real-time selective detection of neurotransmitter molecules by OECT with imprinted polymer modified gate. **S. Guo**, A. Mehrehjedy, J. Eaton, K. Tang, C. Turner, A. Sanders, X. He, W. Miao

3:05. Optimizing the conjugated polymer structure and morphology for near-infrared electrochromic devices. **R.M. Pankow**, A. Facchetti, T.J. Marks

3:20. Mechanistic understanding of N-doped conducting polymer (N-PBDF). **J. Mei**

3:45 Intermission.

4:15. Quantifying on-electron-solvent coupled transport in conjugated polymer thin films. **J.L. Lutkenhaus**, R. Thakur

4:40. Organic mixed conductors for brain-inspired electronics. **S. Fabiano**

5:05. Controlling nanofiber formation via solution pre-aggregation in n-type conjugated polymers for stretchable electronics. **Y. Zhang**, D. Rosas-villalva, L. Zhao, J. Han, D. Baran

5:20. Improving mechanical compliance of donor-acceptor polymers for bioelectronics. **A. Lin**, H. Tran

5:35. Understanding and tailoring the properties of PEDOT: PSS for organic electrochemical transistors. **L. Kayser**

MONDAY AFTERNOON

Virtual Only
Virtual Session

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*
M. Ezazi, *Presiding*

3:00. Application of PVA as a constituent material of the catalyst in the oxidative reaction of white phosphorus. **A. Omirzakova**, D. Kalikh, B. Bakirova, D. Akbayeva

3:15. Smart hydrogel/nanoparticle system for controlled chloramphenicol release. **L. Resina**, K. El Hauadi, J. Sans, T. Esteves, F.C. Ferreira, M.M. Pérez-Madriral, C. Aleman

3:30. Controlled anticancer peptide release using multiresponsive hydrogel/nanoparticle system. **L. Resina**, T. Esteves, S. Pérez-Rafael, F.C. Ferreira, T. Tzanov, D. Díaz Díaz, C. Aleman

3:45. Self-healable, stretchable and conductive hydrogel for skin regeneration. **L. Resina**, F.F. Garrudo, R. Colaço, A.C. Marques, J. Morgado, C. Aleman, T. Esteves, F.C. Ferreira

4:00 Intermission.

4:15. Zwitterionic halophilic polymers: Multi-responsive materials for diverse applications. **V. Arjunan Vasantha**

4:30. Visible light-curable non-fluorinated coatings with low water contact angle hysteresis. **M. Ezazi**

4:45. Measuring magnetic susceptibility and density of microparticles using a magnetic levitation platform. **B. Karakuzu**, E. Ozcivici, H. Tekin

MONDAY EVENING

Ernest N. Morial Convention Center
Hall C

PMSE Sci-Mix

8:00. Solvent-dependent sorption of recycling contaminant surrogates in polypropylene food contact materials. **Y.S. Song**, **H. Wang**, S. Senthilkumaran, J.L. Koontz

8:00. Computational investigation of nanoparticle agglomeration in PLA-glass/iron nanocomposites. **W.A. Pisani**, J.K. Newman, M.K. Shukla

8:00. Microfluidically produced microcapsules with amphiphilic polymer conetwork shells. **S.T. Velasquez**, A. Belluati, E. Tervoort, I. Mattich, B. Hertel, S. Russell, M. Gouveia, C. Mugemana, A. Studart, N. Bruns

8:00. Cardiac troponin I detection using screen printer electrodes modified with sulfonated styrene-isobutylene-styrene (SIBS) block copolymer. **R. Feliciano Crespo**, W. Garcia Rodriguez, G. Ramos Rivera, K. Echeverria, V. Psarras Roman, D. Suleiman Rosado, P. Resto Irizarry

8:00. Development of single source liquid phase precursors for HFC-SiCN ceramic mini composites with enhanced oxidation resistance. S. Mujib, **A. Roy**, B. Walke, S.R. Arunachalam, G. Singh

8:00. Thermally stable ceramics derived from crosslinked borate containing pre-ceramic polymers. **C. Curtis**, C. Corbin

8:00. Ionically-crosslinked polyelectrolyte treatment for fire retardant polyester. **D.L. Smith**, N.A. Vest, M.O. Convento, M.D. Montemayor, J.C. Grunlan

8:00. Additive manufacturing of polymer-derived ceramics with novel thermal NIR laser stereolithography. **E. Wang**, M. Hickner

8:00. Deep eutectic solvents utilized in high-temperature HIPE formation, stabilized with graphite/graphene. **C.E. Gouveia**, D.H. Adamson

8:00. Overcoming thermal instability in organic solar cells using cleavable sidechains. **A. Bates**, H. Zhao, J.J. Shanahan, W. You, X. Gu

8:00. Polymeric blend exploration for tendon manufacturing in tendon replacement therapy. **A. Nguyen**, D. Dabkowski, C. Patten, R. Advincula, D. Anderson, M. Dhar, D. Crouch, S. Newby, E. Ozmen

8:00. Overview of broadband dielectric spectroscopy and its applications in 3D printing and polymer characterization. **J.H. Lambert**, Y. Wang, R. Advincula

8:00. Bioinspired structural color with multi-stimuli-responsiveness by tailored chemical design and processing of core-shell polymer particles. **L. Siewardt**, R. Leiner, M. Gallei

8:00. Synthesis of chelating polymers via raft polymerization of activated ester monomers and post-polymerization functionalization. **C. Yeary**, P.R. Calvo

8:00. Responsive polymeric capsules as feedstocks for creating functional solid-liquid composites. **C. Hsieh**, L. AlMahbobi, M. Avais, P. Wei, Y. Wang, E. Pentzer

8:00. Thermodynamic insights into rare-earth element chelation by metal-binding oligomers. **C.M. Gallagher**, T.D. Ermolaev, M.D. Schulz

- 8:00.** Bioactive surfaces through affinity tag protein-polymer conjugation. **A. Necaïse**, M. Rahman, T. Clemons
- 8:00.** Enhancing selective copper recovery with chelating group functionalized membranes. **F. Chen**, e. deemer, R. Verduzco
- 8:00.** Antimicrobial polymer-based coating against non-enveloped MS2 bacteriophage: virucidal efficiency and potential inactivation mechanism. **L.L. Yasis**, S.H. Garcia, K. Yeung
- 8:00.** Integration of reactive polymers and strain sensors for chemical sensing. **H. Seo**, J. Lim, J. Heo, J. Ryu
- 8:00.** Preparation and studies of New difunctional spirocyclic epoxy monomers. **A. Kelly**, D. Klosterman, A.B. Morgan, V.A. Benin
- 8:00.** Bottlebrush polymer excipients for enhancing solubility of an oral drug. **K. Barr**, F.S. Bates, T.M. Reineke
- 8:00.** Core-shell hybrid filaments for 3D printing via fused filament fabrication. **B. Daichendt**, P. Brown, I.A. Luzinov
- 8:00.** 3D printed cellulose nanocrystal coatings with infra-red reflectance: Continuous to discrete chiral films. **B. Dimitrov**, D. Bukharina, V.V. Tsukruk
- 8:00.** Influence of interfacial anchoring on properties of structures 3D printed using core-shell hybrid filaments. **B. Daichendt**, I.A. Luzinov, P. Brown
- 8:00.** Phytochemical screening of essential oil and evaluation of antimicrobial activity and antioxidant properties of plant essential oil-loaded biopolymer as a potential wound healing. **T.M. Omoyeni**, D. Kavaz
- 8:00.** Tailoring bio-based polyester UV-curable resins with tunable mechanical properties suitable for SLA 3D printing applications. **S. Bokhari**, J.M. Catchmark, S.C. Chmely
- 8:00.** Probing dynamics: Triggering changes in hydrogel-based synthetic extracellular matrices with light toward understanding lung injury and disease. **S. Swedzinski**, J. Graf, L. Pradhan, A.M. Kloxin
- 8:00.** Enhancing cancer therapy: NIR responsive drug delivery via silica coated gold nanorods incorporating thermoresponsive polymer coating. **R. Gautam**, K. Dhiman, D. Soni
- 8:00.** Preparation and structural analysis of polymer-derived ceramic nanocomposites. **V. Mullins**, J.S. Wiggins
- 8:00.** Delivering genes with quinine-based polymers. **P. Roy**, N.W. Kreofsky, C. Van Bruggen, M. Brown, T.M. Reineke

8:00. Stiffness modulation of chitosan-derived nanoparticles impact auranofin drug delivery in triple negative breast cancer. **M.O. Afrifa**, J. H. Kim, K. Pitton, C. Olelewe, A.S. Arojjoye, D. Strachan, M. Suckow, S.G. Awuah

8:00. Electrophoretically deposited TiO₂-containing pectin smart and corrosion-resistant composite coatings. **M. Domalanta**, E. Caldon

8:00. N- type conjugated polymer. **V. Verma**

8:00. Effects of graphene-based additives on the electromagnetic properties of morphologically tailored polyurethane composite films. **Z. Lequeux**, C. Faulkner, L. Kemp, D. Wedgeworth, S. Price, J. Newman, S.E. Morgan

8:00. Polymeric copper chelator for long-term inhibition of breast cancer proliferation and lung metastasis. **X. He**

8:00. Engineered chirality inversion of light in helicoidal biocomposite thin films. **D. Bukharina**, L. Southard, B. Dimitrov, S. Kang, P. Min, V.V. Tsukruk

8:00. Fabrication of nanostructured fuel cell membranes using liquid crystal based materials. **R. Dong**, C. Johnson, C.O. Osuji

8:00. Synergistic copolymer blending informs efficient terpolymer design for high performance PDNA delivery. **M.C. Leyden**, F. Oviedo, R. Kumar, N. Le, T.M. Reineke

8:00. Comprehensive analysis of epoxy resin micro-composite inks for the improvement of processability and printability in direct ink writing. **Z. Smith**, R. Advincula

8:00. Real-time rigidity tuning in recycled polyolefins through PME 3D printing. **X. Miao**, A. Boydston

8:00. Versatile heterogeneous porous organic polymer catalyst for cross-coupling reactions. **M.C. Warndorf**, A. Alexander-Katz, T.M. Swager

8:00. Promising eco-friendly polymers for corrosion inhibition of AZ31 magnesium alloy in simulated body fluid. **A. Aleid**, S.A. Umoren

8:00. Characterization of evolving carbon structures from Bis-*ortho*-diynylarene (BODA)-derived polynaphthalene networks via non-isothermal TGA kinetics and pyro-GCMS. J.M. Brown, P.A. Madden, **E. Borrego**, D.W. Smith

8:00. Tailored polyurethane composite coatings for corrosion protection of carbon steel using a hybrid mesoporous ceria-titania system. **A. Qureshi**, S. Habib, A. Shakoor, E.M. Ahmed, N. Al Qahtani

8:00. Accuracy of a computational model to predict 3D printed copolymer biliary stent behavior. M. Verheyen, **A. Westbrook**, J. Hall, A. Cronin, J. Thomas

8:00. Enhancing the mechanical properties of poly(styrene-butadiene-styrene) with layered double hydroxide nanoparticles through varied coating techniques. **J.D. Pulla**, K. Shen, L. Sun

8:00. Controlling material degradability through stereochemistry. **A.G. Loar**, **B. Baez**, S. Brucks

8:00. Designing robust microgels: A double network approach. **C.V. O'Dell**, A. Smith

8:00. Aggregation Behavior of Current Doped Poly(3-hexylthiophene). **E. Gibson**, S. Mo, N. Kreis, S. Guo

8:00. Synthesis and evaluation of a Diels-Alder polyphenylene with tethered multication moieties. **A. Soares**, M. Lee, N. Hendrickson, B.A. Swan, C. Cornelius

8:00. Spray delivery of supramolecular polymer biomaterials. **L. DiMartino**, P. Jankoski, T. Clemons

8:00. Unraveling the impact of aging on high molecular weight Diels-Alder polyphenylene. **N. Hendrickson**, M. Lee, A. Soares, C. Cornelius

8:00. Electropolymerized organic mixed ionic-electronic conductors. **A. Besic**, C.G. Bischak

8:00. Designing additives to control the shear strength of a polyacrylate adhesive. **C.D. Potter**, J.E. Patterson

8:00. Advancing cartilage repair: A biomimetic approach with guar gum, chitosan, and polyether ether ketone based scaffold. M.H. Nawaz, A. Aizaz, M. Ismat, **M. Abdullah**, A. Ropari, M. Ur Rehman

8:00. Designing a synthetic signalling pathway using Hydrogels. **C. Valentine**

8:00. Microfluidic self-assembly of colorimetric PDA liposome sensors using flow rate manipulation. **C. Razanauskas**, A.C. Chadwick, T.W. Hanks

8:00. Cell penetrating polymers for delivery of photodynamic therapy agents. **M. Wishengrad**, A. Battiste, K. Peinkofer, W. Kramer

8:00. Elucidation of the effect of polymer architecture on targeting ligand presentation in nucleic acid delivery vehicles. **A. Radka**, E. Stacy, P. Jankoski, T. Clemons

8:00. Exploring a means to improve the processability of high T_g imine-benzoxazine vitrimers. **J.D. Arrington**, E. Booker, J. Peyrefitte, L.J. Hamernik, J.S. Wiggins

- 8:00.** Characterization of bioluminescent silk micro/nanoparticles. **K. Lynch**, M. Berg, A. Murphy
- 8:00.** Progress in the development of modular glycopolymers tailored to inhibit norovirus infections. **S.S. Newman**, J. Mase, R. Bianculli, M.D. Schulz
- 8:00.** Surface modification of silk fibroin for electrostatic binding with metal nanostructures. **M. Kerns**, A. Guo, J. Talusig, W. Wee, Y. Bao, A. Murphy
- 8:00.** Composite materials made from silk and gold nanoparticles for photothermal applications. **M. Stucky**, R. Frevol, A. Talbott, Y. Bao, A. Murphy
- 8:00.** Fluorescent silk microparticles containing semiconducting polymer nanoparticles. **C. Doherty**, M. Berg, A. Murphy
- 8:00.** Evaluation of polyethylene glycol dimethacrylate copolymers for use in 3D printed biliary stents. **C. Gaddam**, I. Zabala Valencia, P. Sapkota, J. Thomas
- 8:00.** Altering the microstructure of a proton exchange membrane via manipulating its ion exchange capacity through polymer blending. **A. White**, T. Senathiraja, C. Cornelius
- 8:00.** Examination of mechanical and thermal degradation properties of polylactic acid embedded with lignin–cellulose nanocrystals chars. **T.R. Brown**, J. Beatty, T. Bristol
- 8:00.** 3D printed porous tantalum oxide Scaffold for orthopedic implants. **M. Mudassir**, A. Akhter, K. Bibi, S. Batool, M. Ur Rehman
- 8:00.** Generating tough double network microgels by an emulsification method to make a biomedical adhesive. **Q. Tufino**, A. Smith
- 8:00.** Tuning the spatial arrangement of solid-state sol-gel-based polymer electrolyte membranes via thermal annealing. **Z. Tan**, T. Senathiraja, C. Cornelius
- 8:00.** Identifying low-field NMR biomarkers to characterize collagen/fibrin hydrogel composition. **H. Sawhney**, V. Witherspoon, P.J. Basser
- 8:00.** Investigation into carbon-conscious Poly(hydroxy)urethane foam with phase change materials for thermal energy storage applications. **C. Lucci**, M. Lee, S. Dahlhauser, N. Rorrer, R.D. Allen
- 8:00.** Development of a crosslinked zwitterionic-based hydrogel as a vitreous substitute with anti-fouling properties. **A. Laradji**
- 8:00.** Applying group interaction modelling: Quantitative connection between polymer structure and properties. **K. Wang**, G. Van Assche

8:00. Development and design of porous organic polymers for enhancing their capability for selectively carbon dioxide capture. **M.M. Abdelnaby**, O.C. Al Hamouz

8:00. Electrospinning of polycarbodiimide fibers from pyridine and dichloroethane stocks. **O.V. Kulikov**, S. Peranathan, B.M. Novak

8:00. Design and validation of a co-polymerizable MMP inhibitor for dental adhesive applications. **M. Logan**, L.A. Miller, F. Sandes De Lucena, C.S. Pfeifer

8:00. Hemal loaded mesoporous bioactive glass nanoparticles reinforced alginate based coaxial nanofibers for drug deliver applications. **H. Nadeem**, M. Zeeshan, M. Hasan, M. Ur Rehman, S. Batool

TUESDAY MORNING

New Orleans Marriott
Galerie 1

Cooperative Research Award

Symposium in Honor of Frank S. Bates, Ha Pham, Hung-Jue Sue, and Nikhil Verghese

Financially sponsored by the Eastman Chemical Company

H. S. Creel, L. Sun, *Organizers, Presiding*

8:00 Introductory Remarks.

8:15. Toughened epoxy resins: An enabling technology for low-emission energy storage. **Y.I. Liang**

8:45. Award Address (ACS Award in Applied Polymer Science sponsored by the Eastman Chemical Company). Toughening plastics with poly(ethylene oxide)-b-poly(butylene oxide) diblock copolymer. **F.S. Bates**, M. Larsson, J. Coote, C.J. Ellison

9:15 Intermission.

9:30. Slide-ring materials for circular economy. **K. Ito**, S. Uenuma, S. Ando

10:00. Advancing reliability of highly filled silicone thermal interface materials for electric vehicles and automotive power systems. K. Schansberg, G. Kuhl, M. Guevara, C. Ciutara, N. Riem, **K.L. White**

10:30. Nanoscale phenomena in toughening and strengthening of polymers. **H. Sue**, Z. Zhu, C. Liu, J. Liu

TUESDAY MORNING

New Orleans Marriott

Galerie 5

Department of Defense Symposium on Excellence in Polymeric Materials Science and Engineering

Advances and Opportunities in Thin Film Electronics

Financially supported by UES Inc

K. Caster, R. Lambeth, M. Laskoski, D. Nepal, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Soft hybrid materials for flexible, stretchable, patternable electronics. **T.J. Marks**

8:30. Liquid phase electron microscopy for hydrogel structure elucidation and property prediction. **N.C. Gianneschi**, N.D. Rosenmann

8:55. Engineering strength, adhesion, and electrical conductivity in semiconducting polymers for defense applications. **D.J. Lipomi**

9:20. Hydrolysis-induced morphology evolution of block copolymers in thin films. **T.P. Russell**, M. Hu, X. Li, J. Rzayev, W. Heller, W. Bras

9:45 Intermission.

10:00. Recent advances in materials chemistry on cage-like Silsesquioxanes. **A. Lee**, R.E. Maleczka

10:25. Acyclic diene metathesis polymerization. **K.B. Wagener**

10:50. C-H functionalization of polyolefins as a route to access advanced materials. **F.A. Leibfarth**

11:15. Skin-inspired electronics for robotics and bioelectronics. **Z. Bao**

TUESDAY MORNING

New Orleans Marriott

Galerie 4

Machine Learning, Data, and Automation for Polymer Discovery

Financially supported by Chemspeed Technologies, Inc

C. W. Coley, H. Tran, J. Xu, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Synthesis and analysis of diverse polymer libraries. **C.J. Hawker**, C.M. Bates, E. Murphy, J. Chen, S. Skala

8:40. Closed-loop transfer provides chemical knowledge of photostable light-harvesting molecules. **C. Schroeder**

9:15 Intermission.

9:30. Continuous flow chemistry and active learning algorithms for the alkylation of pyridine and poly(4-vinylpyridine). J. Dunlap, J.G. Ethier, A. Putnam-Neeb, S. Iyer, S. Luo, H. Feng, J. Garrido Torres, A. Doyle, T.M. Swager, R.A. Vaia, P.A. Mirau, C.A. Crouse, **L. Baldwin**

10:05. Using AI to accelerate design of new polymer electrolytes. **H. Kwon**, A. Khajeh, D. Schweigert, Z. Yang, X. Lei, W. Ye, L. Hung

10:40. Automation and active learning for the autonomous design of polymer biomaterials. **A. Gormley**

11:15 Concluding Remarks.

TUESDAY MORNING

New Orleans Marriott

Regent

PMSE Centennial: Celebration of Success and New Frontiers in Polymeric Materials Science and Engineering *Biomaterials & Sustainability*

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida

M. Grunlan, L. Korley, Q. Lin, C. Soles, *Organizers*

S. Alexander, *Presiding*

8:00. Responsive polymer drug conjugates. **H.D. Maynard**

8:25. Emerging biomaterial strategies for addressing challenging unmet medical needs. **M. Becker**

8:50. Decoding repetitive proteins to build functional biomaterials. **D.J. Mai**

9:15. Strategic biomimicry in polymeric biomaterial design. **E. Cosgriff-Hernandez**

9:40 Intermission.

10:00. Sustainability - enhancing circularity of polymers through advanced recycling. **T.H. Epps**

10:25. Physical properties of polymers under thickness confinement at the nanoscale. **P.F. Green**

10:50. Reframing sustainable materials in the 21st century. **K. Beers**

11:15. Rise of molecular recycling. **K. Hofmann**

TUESDAY MORNING

New Orleans Marriott

Galerie 3

Advances in Polymer Materials for Biotechnology

Financially supported by Syensqo

N. Kelley-Loughnane, *Organizer*

K. Crawford, D. Simone, *Organizers, Presiding*

8:00 Introductory Remarks.

8:02. Genetically-targeted polymer assemblies for bioelectronic interfaces. **Z. Bao**

9:02. Photoenzymatic catalysis - using light to reveal new enzyme functions. **T. Hyster**

9:32. Enzyme-mimetic catalysts based on assembly of sequence-defined polymers into crystalline nanomaterials. **C. Chen**

9:52. Polymers for CO₂ capture and carbon source for cyanobacteria growth. **M.A. Velazco**, S. Li, W. Vermaas, M. Green

10:12 Intermission.

10:28. Development of polymer coated biofunctionalized plant leaf scaffold for aligned skeletal muscle assembly. **P. Gopalan**, J. Yun, W.L. Murphy

10:58. Enhancement of Schwann cell migration using peptide-functionalized aligned nanofiber conduits for peripheral nerve reconstruction. **Y. Chan**, Y. Hu, N.G. Judge, N. Li, R.K. Willits, M. Becker

11:18. Mechanical integrity meets infection control: Antibiotic methacrylic comonomers in bone cement. **J. Singh**, J.C. Kadir, W.B. Ribnick, S.A. Sydlík

11:38. Development of a non-thrombogenic vascular stent material. A. Hansen, **A. Sloutski**, R. Wong, M. Rafailovich, R. Clark, B. Essuman, Y. Deng, F. Lin, D. Galanakis

11:58 Concluding Remarks.

TUESDAY MORNING

New Orleans Marriott

Galerie 6

Functional Conjugated Polymers: Design, Synthesis, Characterization, and Emerging Applications

Emerging Structures and Topology

D. Baran, X. Gu, L. Kayser, *Organizers*

L. Fang, *Organizer, Presiding*

G. S. Collier, *Presiding*

8:00. Two-dimensional conjugated polymers: From dream to reality. **X. Feng**

8:25. Design and synthesis of conjugated polymers from novel heterocyclic building. **M. Jeffries-El**

8:50. Tunable nanostructures from polyaniline derivatives: Adhesive gecko-inspired conducting polymers. **S. Adilov**, N. Nuraje, D. Kanzhigitova, S. Duisenbekov, Y. Yeszhan, P. Askar

9:05. Synthesis and characterization of novel hybrid conducting polymers for enhanced gas sensing performance. **D. Kanzhigitova**

9:20. Polyaniline-inspired conductive ladder polymers. **L. Fang**

9:45 Intermission.

10:10. Synthesis of a helical spring-like conjugated polymer. **Z. Bao**

10:35. Design, synthesis, and characterization of functional 1,4-dihydropyrrolo[3,2-b]pyrroles. **G.S. Collier**

10:50. Lone-pair- π conjugation in functional polymers: Conjugation mechanism, disorder resilience, and applications in polymer electrode materials. **P. de Silva**

11:05. Nanoscale tracking of carriers in single conjugated polymer chains. **J.D. McNeill**

11:20. Stacking of heterocycles to control conjugated oligomer packing and luminescence. **S.W. Thomas**

11:35. Establishing self-dopant design principles from structure-function relationships in self-N-doped perylene diimide organic semiconductors. **L.L. Whittaker-Brooks**

TUESDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon B

Kathryn C. Hach Award for Entrepreneurial Success *Symposium in Honor of Cato Thomas Laurencin*

Cosponsored by POLY

Financially supported by Kathryn C. Hach Fund

E. Cosgriff-Hernandez, T. H. Epps, *Organizers, Presiding*

8:00. Periarticular and intraarticular approaches to managing osteoarthritic pain. **L. Nair**

8:30. Translating new drug and gene delivery technologies. **J. Hanes**

9:00. Regenerative biomaterials and medical devices. **G. Ameer**

9:30. Design considerations in the development of ECM models. **H.H. Lu**

10:00. Bioactive lipids and the immune system: New frontiers in regenerative engineering for musculoskeletal repair. L.A. Hymen, S.E. Anderson, H. Zhang, G. Gibson, L. Wood, T. Hla, Y.C. Jang, N.J. Willett, **E.A. Botchwey**

10:30. Polymeric bioactives: Biobased polymers from bioactives and as bioactives. **K.E. Uhrich**

11:00. 3D printable biomaterials for tissue engineering. **A. Mikos**

11:30. Award Address (Kathryn C. Hach Award for Entrepreneurial Success supported by an endowed fund established by Kathryn C. Hach). Regenerative engineering: The Cato T. Laurencin Institute, and entrepreneurial success. **C.T. Laurencin**

TUESDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon A

Polymeric Materials for Sustainability *Carbon Neutral/Negative Polymer Technologies for Energy and the Environment*

A. Baumann, *Organizer*
L. Flagg, H. Oh, Y. Rao, *Organizers, Presiding*
C. M. Stafford, *Presiding*

8:00. Membrane technologies are key enablers of the energy transition. **R.P. Lively**

8:30. Functional polymeric materials via dynamic covalent synthesis for environmental and energy applications. **W. Zhang**

9:00. Using active ester click chemistry to investigate CO₂ facilitated transport in polymer membranes. **J. Moon**, R. Johnson, K. El Hajj Sleiman, Z. Reddecliff

9:30 Intermission.

10:00. Kinetic study of direct air CO₂ capture using hybrid aqueous amino acid polymer system. **Z. Zhu**, U.I. Premadasa, J. Damron, D. Stamberg, N. Oldham, B. Doughty, N. Kumar, V. Bryantsev, V. Bocharova

10:30. Polymer-regulated electrochemical reduction of CO₂ on AG. A. Guo, A. Baumann, E. Rus, C.M. Stafford, **D. Raciti**

11:00. Understanding the critical role of anions in polymeric ion exchange resin for moisture-swing CO₂ capture. **Y. Zhu**, A. Booth, K. Hatzell

11:30. Using carbon sequestering microorganisms to form strong biodegradable plastics. H. Iyer, P. Grandgeorge, I. Campbell, M. Parker, T. Liao, **E. Roumeli**

TUESDAY MORNING

Virtual Only

Virtual Session

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*

M. Rabnawaz, *Presiding*

10:00. Adaptive liquid crystal elastomer materials enabled by dynamic covalent bonds. **H. Bisoyi**

10:15. Sustainable polyesters based on 2,5-furandicarboxylic acid and substituted ethylene glycol derivatives. **M.J. Miri**, D. Verrico, J.R. Samonte, L.T. Reilly, R.O. Smith-Sweetser, A. Jahn, D. Lohmann

10:30. Cellulose microfibers hydrophobization by grafted plant oil-based polymers. **T. Shevtsova**, Z. Demchuk, A. Voronov, O. Shevchuk

10:45. Building back the properties of post-consumers plastics. **M. Rabnawaz**

Multiscale Nanocellulose-Based Materials for Sustainability
Sponsored by CELL, Cosponsored by PMSE and POLY

TUESDAY AFTERNOON

New Orleans Marriott
Studios 3 – 10

PMSE Centennial Poster Session for Graduate Students

Financially supported by National Science Foundation

A. Figg, B. Singhi, C. Thomas, R. Yang, *Organizers*

1:30 M1. Probing dynamics: Triggering changes in hydrogel-based synthetic extracellular matrices with light toward understanding lung injury and disease. **S. Swedzinski**, J. Graf, L. Pradhan, A.M. Kloxin

1:30 M2. Hyperspectral imaging for the detection of microplastics in soil. **M. Abdulmalik Ali**, M.S. Ersan, F. Xiao

1:30 M3. Versatile heterogeneous porous organic polymer catalyst for cross-coupling reactions. **M.C. Warndorf**, A. Alexander-Katz, T.M. Swager

1:30 M4. Tracking electrochemical doping in organic mixed conductors with photoluminescence spectroscopy. **G. Collins**, S. Jackson, C.G. Bischak, M.S. Sajid, R. Noriega

1:30 M5. Rationally designed all-organic polymer dielectrics for high temperature energy storage applications. **P. Aklujkar**, J. Hao, R. Gurnani, R. Ramprasad, Y. Cao, G. Sotzing

1:30 M6. Morphology controlled α -Fe₂O₃ /rGO nanocomposites as high-performance anode for Li-ion battery application. A. Kulkarni, **V. Kumari**, C. Kamaja, G. Singh, M. Katiyar

1:30 M7. PAA-MXene composite polymer free standing electrolyte for zinc-based flexible batteries. G. Singh, C. Kamaja, **V. Kumari**, A. Kulkarni, M. Katiyar

1:30 M8. Enhanced electrochemical performance and reinforcement of nanocomposite gel electrolytes through molecular dispersion of graphene oxide in polyacrylic acid. **V. Kumari**, G. Singh, C. Kamaja, M. Katiyar

1:30 M9. Stille and Bipi polymerization of organic thermoelectric materials. **T. Muthumali**, R.C. Chiechi

1:30 M10. Development of conjugated ladder polymers through robust intrachain hydrogen bonding interactions. **O. Miranda**, C. Deverter, S. Shelton, Y. Liu, L. Fang

- 1:30 M11.** Engineered chirality inversion of light in helicoidal biocomposite thin films. **D. Bukharina**, L. Southard, B. Dimitrov, S. Kang, P. Min, V.V. Tsukruk
- 1:30 M12.** Radical copolymerization of bio-based 5-hydroxymethyl-2-vinylfuran derivatives by constrained cobalt complexes. **P. Pananusorn**, K. Phomphrai
- 1:30 M13.** Enhancing cancer therapy: Nir responsive drug delivery via silica coated gold nanorods incorporating thermoresponsive polymer coating. **R. Gautam**, K. Dhiman, D. Soni
- 1:30 M14.** Delivering genes with quinine-based polymers. **P. Roy**, N.W. Kreofsky, C. Van Bruggen, M. Brown, T.M. Reineke
- 1:30 M15.** Hydrolytic and oxidative degradation of polyurethane foams for trauma wound healing. **N. Petryk**, L. Saldanha, M. Monroe
- 1:30 M16.** Toughening mechanism of poly(lactide) blended with amphiphilic diblock polymers. **M. Larson**, J. Coote, C.J. Ellison, F.S. Bates
- 1:30 M17.** Synthesizing glycopolymers for influenza inhibition: Sialic acid-functionalized polypeptides. **Z. Shi**, R. Bianculli, J. Mase, M. Khubchandani, M. Lodi, M.D. Schulz
- 1:30 M18.** Modeling the effect of structural parameters on the deformation of conducting polymer actuator: Finite element model and electrochemical analysis. **S. Kumar**, A. Yu, M. Khandelwal
- 1:30 M19.** Green and scalable synthesis of raft agents - the future of RAFT polymerization. **V. Garg**, A. McCaslin, M. Forrester, B.W. Kuehl, E.W. Cochran
- 1:30 M20.** Developing high-molar-mass polymerized non-fullerene acceptors for better chemical stability. **X. Zhong**, W. You
- 1:30 M21.** Synthesis of a series of degradable linear polymers based on furan-maleimide diels-alder reactions of silyl ether derivatives. **R. Alkhalalah**, D.Y. Son
- 1:30 M22.** Viscoelastic and mechanical properties of poly(δ -pinene) & derivatives: All-hydrocarbon biomass-based polymers. **N. Moody**, J.G. Kennemur, S. Henges
- 1:30 M23.** Stiffness modulation of chitosan-derived nanoparticles impact auranofin drug delivery in triple negative breast cancer. **M.O. Afrifa**, J. H. Kim, K. Pitton, C. Olelewe, A.S. Arojojoye, D. Strachan, M. Suckow, S.G. Awuah
- 1:30 M24.** Cyclization of linear ethylene brassylate. **M. Ahmad**, S.M. Grayson
- 1:30 M25.** Electrophoretically deposited TiO₂-containing pectin smart and corrosion-resistant composite coatings. **M. Domalanta**, E. Caldona

1:30 M26. N- type conjugated polymer. **V. VERMA**

1:30 M27. Exploring dual-trigger degradation as a step toward adaptive materials. **S. Jha, R.F. Price, D.L. Patton**

1:30 M28. Effects of graphene-based additives on the electromagnetic properties of morphologically tailored polyurethane composite films. **Z. Lequeux, C. Faulkner, L. Kemp, D. Wedgeworth, S. Price, J. Newman, S.E. Morgan**

1:30 M29. Graft copolymer compatibilizers for the dispersion of 1,4-bis[phenylethynyl]benzene (DEB) into siloxane matrices for hydrogen uptake applications. **R.K. McDonough, L.P. Ramos, K. Biegasiewicz, T. Long**

1:30 M30. Polymeric copper chelator for long-term inhibition of breast cancer proliferation and lung metastasis. **X. He**

1:30 M31. Design of nanostructured conducting polymer and its composite for hydrogen sensing. **P. Askar**

1:30 M32. Upcycling of polyolefin feedstock into usable filter media using plant-based solvents. **M. Ghosh, S.C. Jana**

1:30 M33. Development and optimization of autothermal vacuum moisture swing system (aVMS) for direct air capture of CO₂. **M. Patil, M. Green, K. Lackner**

1:30 M34. Application of vibration-assisted convective deposition for poly(3-hexylthiophene)-based organic field-effect transistors. **M. Sun, E. Reichmanis, J.F. Gilchrist, R. Kim**

1:30 M35. Surface modification of poly(vinylidene fluoride) Microfiltration membranes using polydopamine in combination with organic or inorganic hydrophilic agent to improve oil fouling resistance. **M.M. Zagho, S. Shaikh, M.K. Hassan, S. Nazarenko**

1:30 M36. Preparation of flexible epoxy foams derived from plant oil. **M. Vonsul, A. Knight, M. Sabzi, L. Jiang, D.C. Webster**

1:30 M37. Fabrication of nanostructured fuel cell membranes using liquid crystal based materials. **R. Dong, C. Johnson, C.O. Osuji**

1:30 M38. Synergistic copolymer blending informs efficient terpolymer design for high performance PDNA delivery. **M.C. Leyden, F. Oviedo, R. Kumar, N. Le, T.M. Reineke**

1:30 M39. Synergistic carbonization of co-polyarylenes towards higher carbon yields approaching theoretical maximum. **W.W. Johnson, E. Borrego, J.M. Brown, P.A. Madden, C.U. Pittman, D.W. Smith**

- 1:30 M40.** Synthesis and characterization of polybenzoxazine networks from bio-sourced feedstocks. **T. Schneider**, J.S. Wiggins
- 1:30 M41.** Synthesis and design of precision anionic exchange membranes. **N.Z. Singleton**, J.G. Kennemur
- 1:30 M42.** Pyrolytic synthesis of highly conductive ladder type polyaniline. **M. Hays**, M. Leng, L. Fang
- 1:30 M43.** Synergistic pentablock and poly(phenylene oxide) copolymer blends for proton exchange membranes. **T. Senathiraja**, B.A. Swan, A. White
- 1:30 M44.** Methacrylation and dimethacrylation of epoxidized hempseed oil: synthesis and characterization. **M. Odegaard**, S. Kapatsila, D.C. Webster
- 1:30 M45.** Doping effectiveness and stability in semiconducting polymers. **M. Jha**, J.M. Santiana, A.A. Jacob, K. Light, M.L. Hong, M.R. Lau, L.R. Filardi, S.M. Gurses, C. Kronawitter, A.J. Moule
- 1:30 M46.** Design and synthesis of dynamic epoxy-amine networks. **P. Bhunia**, J. Aguinaga, J.A. Davis, D.L. Patton
- 1:30 M47.** Synthesis and characterization of lignin-derived thermoplastic polyester elastomers. **R.K. Maynard**, K. Patel, D. Winfield, J.J. Locklin
- 1:30 M48.** Comprehensive analysis of epoxy resin micro-composite inks for the improvement of processability and printability in direct ink writing. **Z. Smith**, R. Advincula
- 1:30 M49.** Computational studies of the order-disorder transition in block-random copolymers. **R. Kumar**, H. Ashbaugh, J. Albert
- 1:30 M50.** Effect of morphology, molecular weight and mechanophore on mechanical properties of triblock copolymers. **P. VAGHOLKAR**, J.F. Searles, E.P. Fike, Z. Lequeux, L. Kemp, R.F. Storey, Y.C. Simon, T. Thornell, S.E. Morgan
- 1:30 M51.** Synthesis and characterization of carboxylated Polymyrcene. **T. Kharkongor Chengappa**, K.A. Cavicchi
- 1:30 M52.** Real-time rigidity tuning in recycled polyolefins through PME 3D printing. **X. Miao**, A. Boydston
- 1:30 M53.** ZnO-SnO₂-containing fluoropolymer coatings for corrosion protection of mild steel. **S. Tigno**, M. Ali, E. Caldon
- 1:30 M54.** PVDF-HFP/CeO₂/MoO₂ hybrid coatings for corrosion protection applications. **S.A. Adeleke**, E. Caldon

- 1:30 M55.** Self-doping induced open-shell ladder-type di-aniline quinoidal structure. **M. Leng**, L. Fang
- 1:30 M56.** Informatic approach to estimate impactful process parameters for organic field-effect transistors. **M. Lee**, R. Venkatesh, M. O'Brien, M. Grover, E. Reichmanis
- 1:30 M57.** Super-nonwetable and superoleophilic fluoropolymer-modified electrodeposited polythiophene coatings for corrosion protection. **M. Ali**, J. Honeyman, S. Tigno, E. Caldon
- 1:30 M58.** Carboxyl-alkyl functionalized conjugated polyelectrolyte for high performance organic electrochemical transistors. **z. sun**, B. Khau, H. Dong, C. Takacs, S. Yuan, B. Mosevitzky Lis, D. Nguyen, E. Reichmanis
- 1:30 M59.** Preparation and structural analysis of polymer-derived ceramic nanocomposites. **V. Mullins**, J.S. Wiggins
- 1:30 M60.** Phytochemical screening of essential oil and evaluation of antimicrobial activity and antioxidant properties of plant essential oil-loaded biopolymer as a potential wound healing. **T.M. Omoyeni**, D. Kavaz
- 1:30 M61.** Tailoring bio-based polyester UV-curable resins with tunable mechanical properties suitable for SLA 3D printing applications. **S. Bokhari**, J.M. Catchmark, S.C. Chmely
- 1:30 M62.** Effect of polycation molecular weight on diffusion of linear and star polyacids within multilayer assemblies. **P.P. Shah**, A. Aliakseyeu, J.E. Brito, S.A. Sukhishvili
- 1:30 M63.** Retraction behavior of stretchable polyacrylamide hydrogels. **M. Hossain**, S. Kundu
- 1:30 M64.** Polymerization with non-solvents and salts influence the structure of hydrogels. **N. Guillomaitre**, X. Xu, J. Hwang, H.A. Stone, R.D. Priestley
- 1:30 M65.** Topologically precise amphiphilic bottlebrush polymers. **T. Oluwole**, N.D. Ogbonna, M. Dearman, C. Amofa, J. Lawrence

TUESDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon B

100 Years of Polymer Structures

Active Materials for Thin Films and Interfaces

Financially supported by XiMo Hungary Kft

W. Brittain, S. Ludwigs, L. Sun, *Organizers*
J. R uhe, T. A. Seery, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05. Adaptive structures through actuators responsive to heat, light of magnetic fields. **J. R uhe**

2:30. Studies of brush surface and topography for localizing surface interactions. Y.R. Huang, G. Aktas Eken, **C.K. Ober**

2:55. Programming responsive liquid crystal elastomer thin films. **S. Yang**

3:20. Hairy surfaces. **O. Prucker**, J. R uhe

3:45 Intermission.

4:00. Adaptive mixed conducting polymer films for switchable devices. **S. Ludwigs**

4:25. Impact of an electrical potential on the assembly of polymer grafted nanoparticles (PGNP) near an electrode surface via neutron reflectivity. M.A. Haque, T. Feric, S. Hamilton, A. Park, **M.D. Dadmun**

4:50. Polymer network thin films from electrodeposition. **J. Werner**

5:15. Smart soft materials with multiscale architecture and dynamic surface topographies. S. Zeng, K. Shen, **L. Sun**

TUESDAY AFTERNOON

New Orleans Marriott

Galerie 5

Department of Defense Symposium on Excellence in Polymeric Materials Science and Engineering

Advances and Opportunities in Multifunctional Composites

Financially supported by UES Inc

K. Caster, R. Lambeth, M. Laskoski, D. Nepal, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05. Unique approach to investigate thermal protection systems materials. **J.H. Koo**

2:30. Polymeric materials for extreme environments. **J.L. Lenhart**, R. Mrozek

2:55. Advanced chemistry and processing tools for polymer matrix composites. **H. Koerner**

3:20 Intermission.

3:35. Recent progress in the search for dynamically self-amplifying omniphobic multiscale metamaterials. **N. Boechler**

4:00. Adaptive epoxy resins: How do you design rapid response in a polymer glass or composite?. **J. Dennis**

4:25. Using resin chemistry to improve high strain rate performance in glass fiber reinforced composites. **B. Patterson**, B. Knorr

4:45. Thermal conductivity of boron nitride nanotube fabric. **J. Estevez**

TUESDAY AFTERNOON

New Orleans Marriott

Regent

PMSE Centennial: Celebration of Success and New Frontiers in Polymeric Materials Science and Engineering *Entrepreneurship & Smart Materials*

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida

M. Grunlan, L. Korley, Q. Lin, C. Soles, *Organizers*

Q. Lin, *Presiding*

2:00. Fusion of organic polymer chemistry with scalable chemical processes: From scCO_2 to $\text{r}2\text{r}$ particle molding to 3D printing. **J.M. DeSimone**

2:25. Innovation and entrepreneurship in polymer science in celebration of PSME's 100th anniversary. **R.D. Priestley**

2:50. Engineering interfaces for electronic applications: Reactive vapor phase inhibitors for area selective depositions at tunable critical dimensions. **R. Wojtecki**

3:15. Designing, synthesizing and fabricating organic optical devices in display and communication industries. **S.Z. Cheng**, F.W. Harris

3:40 Intermission.

4:00. Polymer semiconductors: From foldable displays to skin-inspired electronics. **Z. Bao**

4:25. Dynamic covalent chemistry and its role in smart materials. **C. Bowman**

4:50. Multiresponsive hydrogels as smart materials for actuator and sensor functions in microfluidic application. **B. Voit**

5:15. Adaptive materials: Key building blocks for sense-assess-respond material feedback. **P. Buskohl**, a. Juhl, R.A. Vaia

TUESDAY AFTERNOON

New Orleans Marriott

Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

B. Anasori, L. Beagle, M. Katiyar, J. Kennedy, A. Thakur, *Organizers*

A. Arabi Shamsabadi, M. Firouzjaei, *Presiding*

2:00 Introductory Remarks.

2:05. Computational Studies of Electrocatalytic HER and CO₂ Reduction using MXenes Materials. **C. Liu**

2:35. Preparation and characterization of lauric acid/ halloysite Nano composite using solvent method. **C. Obele**

2:50. Graphene electroanalytical chips: From *In Vitro* sensing to studying biological cells. **A. Ebrahimi**

3:20. Raman spectroscopy and laser-induced degradation in Nb₂CT_x. **A.N. Giordano**, A.A. Advincula, J. Jiang, T.C. Back, M. Carey, R. Selhorst, Y. Gogotsi, R. Pachter, D. Nepal, **R. Rao**

3:35. Designing structured 2D materials by nanoscale wrinkling. **T.W. Odom**

4:05 Intermission.

4:15. Flatland quantum materials. **C. Chakraborty**

4:45. 2D organic materials: Towards wafer-scale and highly crystalline covalent organic frameworks (COFs). **D. Bhagwandin**

5:00. Biomimetic polymer nanocomposites for superior mechanical properties: Insights from molecular dynamics simulations. **P.P. Singh**, R. Ranganathan

5:15. Non-Intrusive skin-integrated wearables sensors. **S. Kabiri Ameri**

5:45. Enhancing anti-corrosion properties of Pani- via electrodeposited composite films with Go and PVK additives. **K.Y. Patino Jaimes**, R. Advincula, E. Kim

TUESDAY AFTERNOON

New Orleans Marriott

Galerie 3

Advances in Polymer Materials for Biotechnology

Financially supported by Syensqo

K. Crawford, *Organizer*

N. Kelley-Loughnane, D. Simone, *Organizers, Presiding*

2:00 Introductory Remarks.

2:02. Tunable intervalence charge transfer in Prussian Blue analogues enables stable and efficient biocompatible Artificial synapses. **A. Talin**

3:02. Automated discovery of single-chain polymer nanoparticles that mimic proteins. **A. Gormley**

3:32. Fatigue-resistant hydrogel optical fiber enables peripheral nerve optogenetics during locomotion. **X. Liu, S. Rao, W. Chen, Y. Cheng**

3:52. Polymeric bioactive filtration for HVAC systems. **T.J. Kennedy, R.G. Dacey, R. Roth**

4:12 Intermission.

4:28. Muskox (*Ovibos moschatus*) genetics: How does genotype affect complex wool fiber phenotypes?. **D.N. Wagner, C. Alex-Buckner, P. Dennis, H.J. Huson, N. Kelley-Loughnane**

4:58. Prevention of heat-induced enzyme denaturation through polymer protection. **H. Kim, T. Brandstetter, J. Ruhe**

5:18. Architecturally controlled swelling of soft and firm brush hydrogels. **C.J. Wang, F. Vashahi, S. Sheyko**

5:38. Proteomimetic polymer therapeutics. **B. Gattis, N.C. Gianneschi**

5:58 Concluding Remarks.

TUESDAY AFTERNOON

New Orleans Marriott

Galerie 6

Functional Conjugated Polymers: Design, Synthesis, Characterization, and Emerging Applications

Processing and Polymer/Device Physics

D. Baran, L. Fang, L. Kayser, *Organizers*

X. Gu, *Organizer, Presiding*

B. Collins, *Presiding*

2:00. Ionic conjugated polymers as a multifunctional interlayer for perovskite optoelectronic devices. **H. Woo**

2:25. Quantification and stability of molecular doping in semiconducting polymers. **A.J. Moule**, T.L. Murrey, M. Jha, J.M. Santiana

2:50. Bio-based pi-conjugated polymers for photovoltaics. **E. Cloutet**, H. Rondeluk, S. Grelier, H. Cramail, C. Brochon, S. Chambon, L. Vignau

3:05. Toward long term organic solar cell device stability via Thermocleavable donor and acceptor active layer. **h. zhao**, J. Shanahan, g. ma, A. Bates, W. You, X. Gu

3:20. Mapping local dopant concentration in organic mixed conductors upon chemical and electrochemical doping. **C.G. Bischak**

3:45 Intermission.

4:15. Enhancing and gating organic mixed ionic-electronic transport through local surface energy. **B. Collins**

4:40. Withdrawn

5:05. Modeling bulk heterojunction nanoparticles for water splitting. **N. Clarke**, G. Buxton

5:20. Partial incorporation of cleavable side chains for improved thermal stability in polymer solar cells. **J.J. Shanahan**, J. Oh, S.Y. Son, S. Siddika, B. Oconnor, W. You

5:35. Stable and high performing *n*-type and ambipolar organic electrochemical transistor for next-generation bioelectronics. **W. Leong**

TUESDAY AFTERNOON

New Orleans Marriott
Galerie 4

Machine Learning, Data, and Automation for Polymer Discovery

Financially supported by Chemspeed Technologies, Inc

C. W. Coley, H. Tran, J. Xu, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05. Automating the discovery of a catalytic system for the depolymerization of polystyrene. **S. Lo**, F. Strieth-Kalthoff, H. Tran, A. Aspuru-Guzik

2:25. Experimental automation for high-throughput collection of phase diagram and dynamic light scattering data for thermally-responsive polymers, and beyond. **P.D. Pickett**, P. Salipante, C. McCarragher, S.D. Hudson, V. Prabhu

2:45. Polybot - automated platform for new polymer discovery. **Y. Wu**, A. Vriza, H. Chan, J. Xu

3:05 Intermission.

3:20. Development of an autonomous batch reactor system for accelerated materials discovery. **P. Hewitt**, D. Simone

3:40. High throughput virtual screening of monomers for frontal ring opening metathesis polymerization via combinatorial expansion of chemical space surrounding dicyclopentadiene. **L. Chua**, A. Singhal, J. Moore, R. Gomez Bombarelli

4:00. Evaluating and harnessing generative AI for the de novo design of high-conductivity solid polymer electrolytes: A performance comparison of various deep learning architectures. **A. Khajeh**, Z. Yang, W. Ye, X. Lei, D. Schweigert, H. Kwon

4:20. Novel polymer grafting topologies to attain anti-abrasion properties in thermoplastic polymers. **Y. Gao**, J. Terán, E. Grimm, A. Mazo, M. Pasquinelli, E. O'Brien, M. Satterfield, L. Pal, R. Spontak, L.A. Lucia

4:40 Intermission.

4:55. Material acceleration platform for the design of polymer nanocomposites. **M. Haranczyk**

5:15. Machine learning for polymer design to enhance pervaporation-based organic recovery. **M. Yang**, J. Zhu, A.L. McGaughey, R.D. Priestley, E.M. Hoek, D. Jassby, Z.J. Ren

5:35. AI/ML directed polymer synthesis and 3D digital manufacturing. **R.C. Advincula**

5:55 Concluding Remarks.

TUESDAY AFTERNOON

New Orleans Marriott

Mardi Gras Ballroom Salon A

Polymeric Materials for Sustainability

Carbon Neutral/Negative Polymer Technologies for Energy and the Environment

A. Baumann, *Organizer*

L. Flagg, H. Oh, Y. Rao, *Organizers, Presiding*

C. M. Stafford, *Presiding*

2:00. Metal-free organic polymer batteries and polymer-air batteries toward circular energy storage. **J.L. Lutkenhaus**, T. Ma, A. Easley

2:30. Single ion conducting polymer blend electrolytes. **w. loo**, J. Wu, M. Gallmeyer

3:00. Reversible polymerization-depolymerization of organic cyclic esters for thermochemical energy storage. **M. Veerabagu**, M.S. Prabhudesai, P.V. Braun, S. Sinha

3:30 Intermission.

4:00. Probing the ion binding capabilities of synthetic polyzwitterions. **C. Medina Jimenez**, M.V. Tirrell

4:30. Withdrawn

5:00. Membranes for clean energy and sustainable environment. **A. Roy**

5:30. Selective extraction of lithium from brine via diffusion dialysis process using mixed matrix membrane. **S. Pal**, D. Jassby, E.M. Hoek

TUESDAY AFTERNOON

Virtual Only
Virtual Session

PMSE/POLY Poster Session

A. Figg, B. Singhi, C. Urdaneta Thomas, *Organizers*

12:00. Cost effective Ito (glass/PET) coated thin PDLC films using dimethylaminopropyleamine (DMAPA) hardener. **M. Ellahi**

12:00. Recent advances in wastewater purification using grafted thin film nanocomposite/PVDF membrane. **A.A. Adamu Abdullahi**, T.A. Saleh

12:00. Group 14 alkyl and Perfluoroalkylhalide radical activators for alkene photopolymerizations. **A. Dutta**, J. Kim, O. Adebolu, A. Dixit, A.D. Asandei

12:00. Synthesis and conformational relationships of high-performance n-type conjugated polymers based on novel highly electron-deficient building blocks. **C. Zhang**, Y. Zhang

12:00. Poly[acrylamide-*co*-acrylonitrile-*co*- bis(acryloyl)cystamine-*co*-fluorescein-*o*-acrylate] microgels: Degradability and thermophilicity. **A. Hoy**, **S.V. Kazakov**

12:00. Hemal loaded mesoporous bioactive glass nanoparticles reinforced alginate based coaxial nanofibers for drug deliver applications. **H. Nadeem**, M. Zeeshan, M. Hasan, M. Ur Rehman, S. Batool

12:00. Design of safer novel polymer nanocomposites involving ceria nanoparticles and non-PVC polymers for biomedical applications: A molecular dynamic simulation study. **S.G. Shet**, J. Carrillo, S. CHALLA, V. V.

12:00. Dispersing metal halide in zwitterionic COF for highly efficient ammonia storage and separation. **Y. Fu**, H. Ma

12:00. Preparation of PMMA-based temperature/pH responsive nanoparticles by seed photopolymerization under green LED irradiation. **S. Yu**, J. Xing

12:00. Improving mechanical properties of Chitosan films: Sustainable eco-friendly packaging. **P. Ponce**, F. Lopez, C. Loyo

12:00. Liquid-liquid Interface assisted synthesis of conducting polymer-nanomaterial composites. **M. Menamparambath**, N. Puthiyottil

12:00. Advancing cartilage repair: A biomimetic approach with guar gum, chitosan, and polyether ether ketone based scaffold. M.H. Nawaz, A. Aizaz, M. Ismat, **M. Abdullah**, A. Ropari, M. Ur Rehman

12:00. 3D printed porous tantalum oxide Scaffold for orthopedic implants. **M. Mudassir**, A. Akhter, K. Bibi, S. Batool, M. Ur Rehman

12:00. Generating tough double network microgels by an emulsification method to make a biomedical adhesive. **Q. Tufino**, A. Smith

12:00. Doping to engineer carbon nanomaterials: Unveiling the versatility of carbon nanomaterials for Next-Generation material innovations. **K. Ahmad**

Multiscale Nanocellulose-Based Materials for Sustainability
Sponsored by CELL, Cosponsored by PMSE and POLY

State of the Art in Protein-Based Engineered Materials
Protein-based Materials Engineering
Sponsored by CELL, Cosponsored by AGFD, COLL and PMSE

WEDNESDAY MORNING

New Orleans Marriott
Galerie 1

2D Materials-Polymer Interfaces and Nanocomposites

B. Anasori, L. Beagle, M. Katiyar, J. Kennedy, A. Thakur, *Organizers*
H. Fang, C. Liu, *Presiding*

8:00 Introductory Remarks.

8:05. Non-Reflective EMI Shielding and Tunable Microwave Absorption by Tailored MXene Nanocomposite. **A. Yu**

8:35. Synthesis of magnesium oxide nanoparticles fabricated on a graphene oxide nanocomposite for CO₂ sequestration at elevated temperatures. **C. Gunathilake**

8:50. Applications of Two-Dimensional Metal Carbides (MXenes)/polymer composites for the removal of emerging contaminants from water. **K.A. Mahmoud**

9:20. Wenzel or Cassie ice? Anti-icing strategies of superhydrophobic surfaces. **N. Lee**, J. Ruhe

9:35 Intermission.

9:45. Self-healing, self-cleaning, and stretchable moisture-resistant gas barrier films with 2D polymer and inorganic nanoplatelets for flexible electronics packaging applications. S. Mahmood, C. Kant, A. Khan, C. Chu, H. Lin, **M. Katiyar**

10:15. Fabrication and life cycle assessment of a large-scale polysulfone-MXene composite membrane for ultrafiltration applications. **M. Firouzjaei**, Z. Zandi, A. Thakur, A. Rahimpour, M. Elliott, M. Sadrzadeh, B. Anasori

10:30 Concluding Remarks.

WEDNESDAY MORNING

New Orleans Marriott

Mardi Gras Ballroom Salon B

100 Years of Polymer Structures

Active Materials for Thin Films and Interfaces

Financially supported by XiMo Hungary Kft

W. Brittain, J. R  he, T. A. Seery, *Organizers*

S. Ludwigs, L. Sun, *Organizers, Presiding*

O. Prucker, *Presiding*

8:00. Low-k and high-k dielectric polymers containing designed metal organic framework nanoparticles. **H. Sue**, C. Liu

8:25. Applications of synchrotron radiation X-ray scattering and spectroscopy to structure characterization of soft matter. **A. Takahara**

8:50. Molecular design of polarizable soft matter. **D.M. Barber**, J.A. Lewis

9:15. Transfer-dominated branching radical telomerisation (TBRT): Synthesising high molecular weight branched (co)polymers with step-growth backbones using conventional free radical chemistries. **S. Rannard**, S. Cassin, O. Penrhyn-Lowe, S. Flynn, S. Mckeating, P. Chambon, S. Lomas, S. Wright

9:40 Intermission.

9:55. Smart multifunctional slide-ring materials. **K. Ito**, S. Ando

10:20. Mechanochemical reactivity of metallopolymers with metallocenes. L. Ramos, G. Yao, H. Lin, A. Foret, J. Estock, S. Craig, **C. Tang**

10:45. Reassessing chain tilt in the lamellar crystals of polyethylene by electron-diffraction imaging. **H. Jinnai**

11:10. Polymer composites with stimuli-responsive versatility. D. Ravichandrana, **K. Song**

WEDNESDAY MORNING

New Orleans Marriott

Galerie 5

Fundamental Characterization and Properties of Polymers

C. Thomas, *Organizer*

K. Cerdan Gomez, S. Peterson, *Presiding*

8:00. High-throughput characterization of photopolymerizing hydrogels. **K. Cerdan Gomez**, J. Urueña, M.E. Helgeson, M. Valentine

8:15. External stress-free characterization of inherent reversible bond exchanges in vitrimer network. **Y. Wang**, J. Davis, Z. Qiang, Y.C. Simon, D.L. Patton

8:30. Understanding additive degradation pathways and formation of Non-Intentionally Added Substances (NIAS) in polystyrene: Impact on chemical structure and thermo-mechanical properties. S. Perocheau-Arnaud, V. Michelet, S. Olivero, P. Navard, C. Combeaud, **A. Mija**

8:45. Experimentally determined Hansen solubility parameters of biobased and biodegradable polyesters. **K. Patel**, R. Maynard, L. Ferguson, M. Broich, J. Bledsoe, C. Wood, G. Crane, J. Bramhall, J. Rust, A. Williams-Rhaesa, J.J. Locklin

9:00. Physico-chemical design of nucleating agents for biobased polyesters: Revealing the origin in nucleation. **F. Bertella**, C. Moya-Lopez, S. De Wildeman, D. Hermida-Merino, J. Harings

9:15. The complex characterization of poly(amino acids) in solution. **M. Barz**

9:30 Intermission.

9:45. Exploring the effect of solvent on the formation of UV-cured thiol-ene networks. **J.M. Schekman**, Y.C. Simon, S. Nazarenko

10:00. Interphase mechanical behavior in poly(methyl methacrylate) - polyrotaxane blends using AFM-based nanoindentation. **S. Peterson**, G. Molero, Z. Zhu, H. Sue, P. Kolluru

10:15. Impact of backbone stereochemistry on the physical and biological properties of ROMP-based precision glycopolymers. **M. Ishaq**, C.E. Callmann

10:30. Understanding the impact of BHT stabilizer and solvent interactions on the microstructure of spun-cast nanoporous thin films of PMMA. **S. Flagg**, E. Peterson, B. Augustine

10:45. Conformation and dynamics of bottlebrush polymers. K. Bichler, B. Jakobi, **G.J. Schneider**

11:00. Influence of rigidity on bottlebrush dynamics. **B. Jakobi**, K. Bichler, G.J. Schneider

WEDNESDAY MORNING

New Orleans Marriott

Galerie 4

Machine Learning, Data, and Automation for Polymer Discovery

Financially supported by Chemspeed Technologies, Inc

C. W. Coley, H. Tran, J. Xu, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. BigSMILES line notation for polymer structures. **B.D. Olsen**, T. Lin, M. Deagen, W. Zou, B. Salomao, N. Rebello, J. Shi, S. Craig, M. Rubinstein

8:40. Copolymer blending and machine learning informs efficient terpolymer design for high performance nucleic acid delivery. **T.M. Reineke**, M.C. Leyden

9:15. Machine-learning-guided discovery of functional polymers. **F.A. Leibfarth**, O. Isayev

9:50 Intermission.

10:05. Accelerated discovery of organic mixed conductors: Envisioning developments in the next century of polymer science and engineering. **M. Seifrid**

10:40. Predicting the glass transition of complex polymers via integration of machine learning, molecular modeling and experiments. **W. Xia**

11:15. Data-driven development of polymer microparticles. Z. Bao, P. Bannigan, A. Aspuru-Guzik, **C. Allen**

11:50 Concluding Remarks.

WEDNESDAY MORNING

New Orleans Marriott
Regent

PMSE Centennial: Celebration of Success and New Frontiers in Polymeric Materials Science and Engineering *Materials Discovery & Energy*

Financially supported by National Science Foundation; ExxonMobil; RSC Journals (*Polymer Chemistry, RSC Applied Polymers, RSC Advances, RSC Applied Polymers*); Gelest; University of Houston, Department of Chemical & Biomolecular Engineering; Tosoh Bioscience; Notre Dame Energy & Notre Dame Materials Science & Engineering Program; TA Instruments - Waters; Chemglass Life Sciences; University of Florida

M. Grunlan, L. Korley, Q. Lin, C. Soles, *Organizers*
H. Kwon, *Presiding*

8:00. Computational design and discovery of polymeric materials: How did we get here, and where are we going?. **J.J. De Pablo**

8:25. Innovation in polymer science and engineering driven by molecular modeling, simulations, and machine learning. **A. Jayaraman**

8:50. ARES™ autonomous experimentation for accelerated research. **B. Maruyama**

9:15. The future of materials designers in polymer science. **B.D. Olsen**

9:40 Intermission.

10:00. Macromolecular engineering of chromophores that harness and amplify light energy. **L.M. Campos**

10:25. Organic polymer batteries: Past, present, and future. **J.L. Lutkenhaus**

10:50. Ion transport and performance analysis in polymer composite electrolytes. **X.C. Chen**

11:15. Single-ion conducting polymer electrolytes for rechargeable batteries. **J.L. Schaefer**

WEDNESDAY MORNING

New Orleans Marriott
Galerie 6

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*
N. J. Conte, A. Nason, *Presiding*

8:00. Multimode sono-fabrication: An advanced approach for synthesis and printing of tough hydrogels. **Y. CHENG**, S. Lee, L. Bourdages, J. Provost, J. Li

8:15. Zwitterionic aromatic polyamide brushes as durable antifouling surfaces. **N.J. Conte**, S. Boyes

8:30. Withdrawn

8:45. Soybean extract as green additive to fluoropolymer coating for enhanced surface adhesion and corrosion protection. **M. Domalanta**, E. Delas Armas, S. Ferdousi, Y. Jiang, E. Caldona

9:00. Durable TiO₂/PVDF-HFP nanocomposite corrosion-resistant coatings for mild steel. **S.A. Adeleke**, E. Caldona

9:15. Polymer brushes at the nanoscale: Synthesis, characterizations, and applications of mixed Rod-coil nanopatterned systems. **Y.R. Huang**, G. AKTAS EKEN, C.K. Ober

9:30 Intermission.

9:45. Scaling-up the cationic polymerization of poly(phthalaldehyde) via continuous flow synthesis. **A.C. Engler**, J.M. Schwartz, P.A. Kohl

10:00. Chemical recycling of polybutadiene rubber with tunable thermal depolymerization enabled by microencapsulated metathesis catalysts. **M. Warner**, M. Romero, B. Jones

10:15. Non-isocyanate polyurethane network circularity: Reprocessing and monomer recovery leveraging disulfide and thiourethane dynamic chemistry. **Y. Chen**, N. Mielke, N.S. Purwanto, B. Chen, J.M. Torkelson

10:30. Mechanochemical upcycling of polystyrene into value-added products. **M. Wang**

10:45. Depolymerization of polyethylene terephthalate using CO₂-H₂O media. **D. Osei**, A. Sheldon, J. Mayuga, L. Gurrala, A. Morais

11:00. Purification of waste PET monomers using reactive crystallization via metal-organic-framework intermediate. **A. Nason**, W. Phamonpon, R.T. Jerozal, P.J. Milner, J. Suntivich

11:15. Sequential dehydrochlorination-hydrogenation cycles on PVC towards tailorable depolymerization products. **A. Alshaikh**, J.E. Bara

WEDNESDAY MORNING

New Orleans Marriott
Galerie 3

Advances in Polymer Materials for Biotechnology

Financially supported by Syensqo

D. Simone, *Organizer*

K. Crawford, N. Kelley-Loughnane, *Organizers, Presiding*

8:00 Introductory Remarks.

8:02. Synthetic mucus gels for biotechnological applications. **A.B. Braunschweig**

9:02. Customizing ionic sequence-defined peptoid micelles by charge patterns. **D. Zhang**, B.N. Barrett, M. Zhang, E. Tsai, R. Kumar, C. Tung, W. Chen, Y. Liu, X. Zuo

9:32. Protease-driven self-assembly of elastin-like polypeptides. **B.M. Wirtz**, A.G. Yun, X. Gao, D.J. Mai

9:52. Design of protein-based amphiphiles with controlled phase transition behavior and self-assembly properties. **B. Wang**, W. Xie, D.J. Pochan, K.L. Kiick

10:12 Intermission.

10:28. Tunable oligomeric peptide-polymer assemblies. **A. Knight**

10:58. Self-assembly and dye encapsulation of saccharide containing “Janus-type” linear dendritic block copolymers for utilization in biomedical applications. **K.A. Green**, P. Jankoski, T.B. Newton, B. Derbigny, A.S. Kulkarni, D.L. Watkins, T. Clemons, L. Kemp, S.E. Morgan

11:18. HPG-PPG-HPG copolymer: A new polymer exhibiting unique properties. **C. Zhao**

11:38 . Self-boosting mRNA vaccine delivery using a novel dissolvable needle. **J. Han**, L. Zhang, R. Langer, A. Jaklenec

11:58 Concluding Remarks.

WEDNESDAY MORNING

New Orleans Marriott
Mardi Gras Ballroom Salon A

Polymers for a Circular Economy *System Perspective*

S. Avraamidou, A. Carpenter, A. Yvon-Bessette, *Organizers, Presiding*

8:00 Introductory Remarks.

8:05. Systems perspective for implementing the circular economy for polymers. **B. Bakshi, K. Peretti, E. Nuñez**

9:05 Discussion.

9:20 Intermission.

9:30. Realization of a polymer circular economy through recycling and repurposing of waste plastics. **X. Zhang**, S. Conroy, S. Jia, F. Norris

9:50. Upcycling plastic wastes to value-added chemicals via electrified spatiotemporal heating. **Q. Dong**

10:10. Standards to support a circular economy for textiles. **A. Forster**

10:30. Plastics redesign for biorenewable circularity. **B. Helms**

10:50 Intermission.

11:00. Nylon 6 Deconstruction and upcycling: From waste to a new place. **J. Zheng**, M. Boucher, T. Saito, J. Foster, M. Arifuzzaman

11:20. Single-monomer - multiple-polymer strategy towards closed-loop recycling of mixed plastics. **F. Eckstrom**

11:40. Synthesis of hydroxy-telechelic polyethylene for the reactive compatibilization of mixed PET/LLPDE waste. **C.S. Sample**, C.J. Ellison, M.A. Hillmyer

WEDNESDAY MORNING

New Orleans Marriott
Studio 3 – 10

PMSE/POLY Poster Session

A. Figg, B. Singhi, C. Urdaneta Thomas, *Organizers*

10:30 M54. Development of a crosslinked zwitterionic-based hydrogel as a vitreous substitute with anti-fouling properties. **A. Laradji**

10:30 M55. Rapamycin induction increases the Cutinase gene expression and secretion via the mTOR pathway in *Papiliotrema laurentii*. **S.M. Zelik**, B. Stamps, V. Roman, N. Kelley-Loughnane

10:30 M56. Development and design of porous organic polymers for enhancing their capability for selectively carbon dioxide capture. **M.M. Abdelnaby**, O.C. Al Hamouz

10:30 M57. Electrospinning of polycarbodiimide fibers from pyridine and dichloroethane stocks. **O.V. Kulikov**, S. Peranathan, B.M. Novak

10:30 M58. Triethoxysilyl-terminated telechelic liquid butadiene rubber with disulfide linkages for tire tread of electric vehicle. **S. Kim**, H. Choi, S. Song, G. Yeom, D. Kim, J. Jeong, K. Hwang, S. Joo, S. Chung, W. Kim, H. Paik

10:30 M59. Applying group interaction modelling: Quantitative connection between polymer structure and properties. **K. Wang**, G. Van Assche

10:30 M60. Two component dynamic cross-linking polymer coatings for military applications. **N. Weise**, D. Fragiadakis, D. Fabrizio, B.T. Rasley, C. Murphy, J. Lundin

10:30 M61. Characterization of wool fibers from arctic animals: Biotech solutions for keratin-infused textiles. **V. Roman**, A. Braddock, B. Stamps, N. Kelley-Loughnane

10:30 M62. Design and validation of a co-polymerizable MMP inhibitor for dental adhesive applications. **M. Logan**, L.A. Miller, F. Sandes De Lucena, C.S. Pfeifer

10:30 M63. Investigation into carbon-conscious Poly(hydroxy)urethane foam with phase change materials for thermal energy storage applications. **C. Lucci**, M. Lee, S. Dahlhauser, N. Rorrer, R.D. Allen

10:30 M64. Porous carbon-based particles and their polyethyleneimine modified forms as adsorbents in the development of CO₂ capture technologies. B. Ari, A.K. Sunol, **N. Sahiner**

10:30 M65. Investigating linear/nonlinear viscoelasticity of associative polymer networks through molecular simulations. **P. Tang**, X. Cui

10:30 M66. Using deterministic chaotic advection for the facile biofabrication of microstructured tissues: Extrusion chaotic bioprinting. **G. Trujillo-de Santiago**, E.J. Bolivar-Monsalve, C.A. Ceballos-Gonzalez, C. Chavez-Madero, M.D. Derby, A. Khademhosseini, Y.S. Zhang, P.S. Weiss, M.M. Alvarez

State of the Art in Protein-Based Engineered Materials
Protein Waste Revalorisation for Sustainable Materials
Sponsored by CELL, Cosponsored by AGFD, COLL and PMSE

WEDNESDAY LUNCH HOUR

New Orleans Marriott
Galerie 2

12:00 – 2:00 PMSE Panel Discussion: Partnership and Opportunities in the Next Frontier of Polymeric Materials for Defense

Panelists: Francesca Iacopi, University of Technology, Sydney; Joe Lenhart, DEVOM, Army Research Laboratory; Seth Marder, University of Colorado; Holly Thomas, Boeing Research and Technology; Richard Vaia, Air Force Research Laboratory; and David Walters, PPD Industries, Inc. ***Boxed lunches provided while available.***

WEDNESDAY AFTERNOON

New Orleans Marriott
Studios 3 - 10

PMSE Centennial Poster Session for Early Career Researchers in Academia, Industry, and National Labs

A. Figg, B. Singhi, C. Thomas, R. Yang, *Organizers*

1:30 M1. Computational investigation of nanoparticle agglomeration in PLA-glass/iron nanocomposites. **W.A. Pisani**, J.K. Newman, M.K. Shukla

1:30 M2. Microfluidically produced microcapsules with amphiphilic polymer conetwork shells. **S.T. Velasquez**, A. Belluati, E. Tervoort, I. Mattich, B. Hertel, S. Russell, M. Gouveia, C. Mugemana, A. Studart, N. Bruns

1:30 M3. Design and synthesis towards defect-free, rigid, thermodynamically driven Benzobisimidazole (BBI) ladder polymer. **V.N. Shinde**

1:30 M4. Thermally stable ceramics derived from crosslinked borate containing pre-ceramic polymers. **C. Curtis**, C. Corbin

- 1:30 M6.** Scalable polyamine-appended nanoporous networks for carbon capture. **H. Mao**, Y. Cui, J.A. Reimer
- 1:30 M7.** Cardiac troponin I detection using screen printer electrodes modified with sulfonated styrene-isobutylene-styrene (SIBS) block copolymer. **R. Feliciano Crespo**, W. Garcia Rodriguez, G. Ramos Rivera, K. Echeverria, V. Psarras Roman, D. Suleiman Rosado, P. Resto Irizarry
- 1:30 M8.** Development of single source liquid phase precursors for HfC-SiCN ceramic mini composites with enhanced oxidation resistance. S. Mujib, **A. Roy**, B. Walke, S.R. Arunachalam, G. Singh
- 1:30 M9.** Sustainable carbon-storing polymer admixtures for high-strength concrete. **A. Erwin**, W. Chen
- 1:30 M10.** Molecular relaxations and electrical properties of high-performance DPP-based donor-acceptor conjugated polymer. **Z. Cao**, Z. Li, S. Tolba, G. Mason, N. Osti, K. Hong, S. Rondeau-Gagne, W. Xia, X. Gu
- 1:30 M11.** Anion effects for solution-processable oligoether-functionalized PEDOT for redox applications. **A.A. Advincula**, T. Castillo, J.F. Ponder, K. Thorley, M. Adams, S. Inal, J.R. Reynolds
- 1:30 M12.** Utilizing nature tropism of a novel nanomaterial towards cancer stem cells. **G. Xiong**, A. Schatzlein, I.F. Uchegbu
- 1:30 M13.** Bifunctional bio-based phthalonitrile and acetylene polymer foams. **J.D. Sitter**, M. Laskoski
- 1:30 M14.** Compatibilization of poly(L-lactic acid) and poly(δ -valerolactone) for tough, thermally-robust, and compostable packaging technologies. **A. Baer**, R. Clarke, K. Knauer, R. Ramegowda
- 1:30 M15.** Solvent-dependent sorption of recycling contaminant surrogates in polypropylene food contact materials. **Y.S. Song**, **H. Wang**, S. Senthilkumaran, J.L. Koontz
- 1:30 M16.** Frontiers in nonviral delivery of genetic drugs driven by polymer chemistry and machine learning. **S.R. Petersen**, J. Ting, S. Murthy
- 1:30 M17.** Low friction fabric finishes eliminate microplastic fiber release. **S. Lahiri**
- 1:30 M18.** Polyethyleneimine-based super porous cryogel composites as carbon dioxide capture systems. **S. Demirci**, V. Bhethanabotla, **N. Sahiner**
- 1:30 M19.** Toughening brittle biological P3HB with synthetic polyesters. **Z. Zhang**, E.Y. Chen

1:30 M20. Biopolymer-based solid polyelectrolyte complexes for fully recyclable packaging materials. **P. Cai**, M.V. Tirrell

WEDNESDAY AFTERNOON

New Orleans Marriott
Studios 3 – 10

PMSE Centennial Poster Session for Undergraduate Students

Financially supported by National Science Foundation

A. Figg, B. Singhi, C. Thomas, R. Yang, *Organizers*

1:30 M21. Promising eco-friendly polymers for corrosion inhibition of AZ31 magnesium alloy in simulated body fluid. **A. Aleid**, S.A. Umoren

1:30 M22. Controlling material degradability through stereochemistry. **A.G. Loar**, **B. Baez**, S. Brucks

1:30 M23. Tailored polyurethane composite coatings for corrosion protection of carbon steel using a hybrid mesoporous ceria-titania system. **A. QURESHI**, S. Habib, A. Shakoor, E.M. Ahmed, N. Al Qahtani

1:30 M24. Accuracy of a computational model to predict 3D printed copolymer biliary stent behavior. M. Verheyen, **A. Westbrook**, J. Hall, A. Cronin, J. Thomas

1:30 M25. Linear-dendritic hybrid polymer via Williamson ether synthesis. **A. Huskey**, A. Miles, S.M. Grayson

1:30 M26. Synthesis and evaluation of a Diels-Alder polyphenylene with tethered multication moieties. **A. Soares**, M. Lee, N. Hendrickson, B.A. Swan, C. Cornelius

1:30 M27. Altering the microstructure of a proton exchange membrane via manipulating its ion exchange capacity through polymer blending. **A. White**, T. Senathiraja, C. Cornelius

1:30 M28. Elucidation of the effect of polymer architecture on targeting ligand presentation in nucleic acid delivery vehicles. **A. Radka**, E. Stacy, P. Jankoski, T. Clemons

1:30 M29. Integrating antifreeze proteins in silk microneedle patch delivery. **A.L. Reyes**, B. Penney, K. Meister, S. Theodossiou

1:30 M30. Electropolymerized organic mixed ionic-electronic conductors. **A. Besic**, C.G. Bischak

1:30 M31. Designing robust microgels: A double network approach. **C.V. O'Dell**, A. Smith

1:30 M32. Fluorescent silk microparticles containing semiconducting polymer nanoparticles. **C. Doherty, M. Berg, A. Murphy**

1:30 M33. Designing additives to control the shear strength of a polyacrylate adhesive. **C.D. Potter, J.E. Patterson**

1:30 M34. Covalent modification of keratin proteins for novel biomaterial applications. **C. Dalton, T. Clemons, E. Stacy**

1:30 M35. Microfluidic self-assembly of colorimetric PDA liposome sensors using flow rate manipulation. **C. Razanauskas, A.C. Chadwick, T.W. Hanks**

1:30 M36. Designing a synthetic signalling pathway using Hydrogels. **C. Valentine**

1:30 M37. Evaluation of polyethylene glycol dimethacrylate copolymers for use in 3D printed biliary stents. **C. Gaddam, I. Zabala Valencia, P. Sapkota, J. Thomas**

1:30 M38. Role of surface nanotopography on protein adsorption. **D.V. Razgonyaev, M. Zimic, N. Minasian, A. Gauer, D. Salatto, D. Nykypanchuk, T. Koga, M.K. Endoh**

1:30 M39. Investigating the impact of linear diamine structure in imine-benzoxazine vitrimers. **E. Booker, J.D. Arrington, J. Peyrefitte, J.S. Wiggins, L.J. Hamernik**

1:30 M40. Regio-regularity effects on mixed conduction in a glycolated polythiophene. **E.J. Kelly, D. Meli, J. Tropp, J. Rivnay**

1:30 M42. Characterization of evolving carbon structures from Bis-*ortho*-diynylarene (BODA)-derived polynaphthalene networks via non-isothermal TGA kinetics and pyro-GCMS. **J.M. Brown, P.A. Madden, E. Borrego, D.W. Smith**

1:30 M43. Aggregation Behavior of Current Doped Poly(3-hexylthiophene). **E. Gibson, S. Mo, N. Kreis, S. Guo**

1:30 M44. Identifying low-field NMR biomarkers to characterize collagen/fibrin hydrogel composition. **H. Sawhney, V. Witherspoon, P.J. Basser**

1:30 M45. Synthesis and formulation of high performance benzoxazine and epoxy composite blends for additive manufacturing applications. **J. Leuciuc, A. King, S. Andreou, R. Advincula**

1:30 M46. Enhancing the mechanical properties of poly(styrene-butadiene-styrene) with layered double hydroxide nanoparticles through varied coating techniques. **J.D. Pulla, K. Shen, L. Sun**

1:30 M47. Exploring a means to improve the processability of high T_g imine-benzoxazine vitrimers. **J.D. Arrington, E. Booker, J. Peyrefitte, L.J. Hamernik, J.S. Wiggins**

- 1:30 M48.** Scalable approach for organic photovoltaic polymers: Simplified synthesis with enhanced processing. **J. Lo Curcio**, S. Sabury, A. Jones, E. Shen, J.R. Reynolds
- 1:30 M49.** Interfacial engineering of particles and surfaced for activation and bonding to benzoxazine based polymers. **K. Hekker**, D.A. Rider
- 1:30 M50.** Effect of angle on flow dynamics of wax on plastic microfluidic devices. **K. Sanders**, A. Qamar
- 1:30 M51.** Characterization of bioluminescent silk micro/nanoparticles. **K. Lynch**, M. Berg, A. Murphy
- 1:30 M52.** Synthesis of biodegradable polymers from furan-protected maleimide compounds. D.Y. Son, **K. Nguyen**, R. Alkhalalah
- 1:30 M54.** Determining the kinetics of sulfonate dopants in organic mixed conductors. **K.S. Forthman**, C.G. Bischak
- 1:30 M55.** Spray delivery of supramolecular polymer biomaterials. **L. DiMartino**, P. Jankoski, T. Clemons
- 1:30 M56.** Surface modification of silk fibroin for electrostatic binding with metal nanostructures. **M. Kerns**, A. Guo, J. Talusig, W. Wee, Y. Bao, A. Murphy
- 1:30 M57.** Cell penetrating polymers for delivery of photodynamic therapy agents. **M. Wishengrad**, A. Battiste, K. Peinkofer, W. Kramer
- 1:30 M59.** Composite materials made from silk and gold nanoparticles for photothermal applications. **M. Stucky**, R. Frevol, A. Talbott, Y. Bao, A. Murphy
- 1:30 M60.** Unraveling the impact of aging on high molecular weight Diels-Alder polyphenylene. **N. Hendrickson**, M. Lee, A. Soares, C. Cornelius
- 1:30 M61.** Determining significant bioprinting parameters for PLGA nanoparticle-Laden biomaterial inks. **N.A. Nazeer**, S.C. Woodward, **G.N. Hislop**, C. Crosby, K. Cheng, N. Pyles, R. Ajeeb, J.R. Clegg
- 1:30 M63.** Progress in the development of modular glycopolymers tailored to inhibit norovirus infections. **S.S. Newman**, J. Mase, R. Bianculli, M.D. Schulz
- 1:30 M64.** Examination of mechanical and thermal degradation properties of polylactic acid embedded with lignin–cellulose nanocrystals chars. **T.R. Brown**, J. Beatty, T. Bristol
- :30 M65.** Tuning the spatial arrangement of solid-state sol-gel-based polymer electrolyte membranes via thermal annealing. **Z. Tan**, T. Senathiraja, C. Cornelius

WEDNESDAY AFTERNOON

New Orleans Marriott
Mardi Gras Ballroom Salon B

100 Years of Polymer Structures

Active Materials for Thin Films and Interfaces

Financially supported by XiMo Hungary Kft

W. Brittain, S. Ludwigs, J. R  he, T. A. Seery, L. Sun, *Organizers*
K. Shen, K. Song, J. Werner, *Presiding*

2:00. Nexus of grafted conjugated polymers and polymer brushes. **R.C. Advincula**

2:25. Balancing electronic and ionic transport in polymers: From dry to hydrated systems. **S. Patel**

2:50. Thermo-responsive liquid crystalline bimetal-like actuators. **J. Leonhardt**, J. R  he

3:15. Polymer brushes and synthetic receptors: A dynamic duo in sensing technologies. **G. Aktas Eken**, Y.R. Huang, O. Prucker, J. R  he, C.K. Ober

3:40 Intermission.

3:55. Thermal structuring of surface-attached polymer networks. **A. Bleiziffer**, J. R  he

4:20. Solid-state electrocaloric cooling, from organic/polymer dielectric and semi-conducting materials to devices. **G. Hadziioannou**

4:45. Protein-polymer bioconjugation via photoinduced RAFT polymerization using porphyrinic metal-organic frameworks. Y. Huang, **Z. Luo**

WEDNESDAY AFTERNOON

New Orleans Marriott
Regent

Fundamental Characterization and Properties of Polymers

C. Thomas, *Organizer*
E. Stephanie, S. Tigno, *Presiding*

2:00. Corrosion resistant fluoropolymer composite coatings containing organo-functionalized clay particles. **S. Tigno**, M. Ali, E. Caldona

- 2:15.** Fundamental factors that impact the glass transition temperatures of bottlebrush polymers. **M. Dearman**, N.D. Ogbonna, C. Amofa, T. Oluwole, A. Peters, J. Lawrence
- 2:30.** Untangling chemistry and performance properties at epoxy-pressure sensitive adhesive interfaces. **E. Ma**
- 2:45.** Mechanically robust, hierarchically self-assembled materials from cellulose nanocrystals covalently interlocked with liquid crystal grafted polyacrylates. **P. Njenga**, D. Ndaya, F.K. Masese, R. Kasi
- 3:00.** Dielectric characterization of waterborne polyelectrolyte: Application in energy storage. **H. Farghaly**, M. Singh, R. Li, P. Akcora, A. Karim
- 3:15.** Exploring the impact of Nanofiller dimensionality on energy storage performance in polymer nanocomposites. **F.H. Likhi**, M. Singh, M. Saadi, P. Ajayan, A. Karim
- 3:30** Intermission.
- 3:45.** Soil compostability of ester-based thiol-ene photopolymer networks. **C. Wang**, A. Heiner
- 4:00.** Comparative analysis of water barrier properties in commercially available biobased polymers. **A. Dadras**, Y. Polunin, S. Szwiec, S. Mirmohammadsadeghi, M. Ali, G. Casanola-Martin, E. Caldon, B. Rasulev, S. Minko, A.S. Voronov
- 4:15.** Quantitative analysis of enzymatic degradation process of Poly(lactic acid). **E. Stephanie**, N. Minasian, Y. Meng, M.K. Endoh, T. Koga
- 4:30.** Enhanced barrier and thermal properties of PHBV bioplastic through waste-derived plasticizer and natural rubber blending for sustainable packaging solutions. **R. Ghosh**, Y. Vodovotz, X. Zhao
- 4:45.** Controlling properties of block copolymer-based vitrimers through varying crosslinker identity. **C.B. Dunn**, M. Sadri, J. Perkins, Z. Qiang
- 5:00.** Characterizing quaternary ammonium polystyrene polymers for structure, property, and performance relationships in direct air capture applications. **E.M. Benard**, M. Green, M.A. Velazco, K. Niimoto

WEDNESDAY AFTERNOON

New Orleans Marriott
Galerie 1

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*

K. Rajagopalan, C. Westover, *Presiding*

2:00. Rubbery organic frameworks- ROF toward ultra permeable CO₂ selective soft adaptive membranes. **M. Barboiu**

2:15. Hybrid polymer Salogels as reversible matrices for shape stabilization of a chloride salt hydrate thermal energy storage material. **K. Rajagopalan**, S. Haney, P. Shamberger, S.A. Sukhishvili

2:30. Core-shell nanospheres of silica@ZnO enriched polyurethane coating for sustainable marine transport. **J. Verma**

2:45. Direct laser writing of complex 3D metal nanoparticle patterns within polymer microstructures for photothermal micro-actuators. **L. Lavelle**, S. Kolagatla, P. Parlanti, M. Gemmi, C. Delaney, L. Florea

3:00. Multifunctional heteroatom doped g-C₃N₄ embedded HA-Gd(III) and HA-Fe(III) particles as targetable theragnostic. **S. Sagbas**, **M. Sahiner**, E. Umut, **N. Sahiner**

3:15. Hydrogels equipped with smart skins: Switching on/off the release of solutes. **M. Nader**, N. Sai Subraveti, S.R. Raghavan

3:30 Intermission.

3:45. Direct laser writing of self-assembled colloidal polymer particles - 4D hierarchical microstructures for structural colour and optical sensing. **T. Faraone**, J. Qian, L. Bradley, C. Delaney, L. Florea

4:00. Mycelia enable customizable living ablative coatings. **A. Gryganskyi**, V. Roman, P. Dennis, N. Kelley-Loughnane, B. Stamps

4:15. Vinyl ketone polymers, an emerging class of photodegradable polymers. **D. Konkolewicz**, N. De Alwis Watuthantrige, M. Weerasinghe, Z. Oestreicher, P. McBeth, M. Mancini, J. Reeves, T. Nwoko

4:30. Targeted separation scheme of polyurethane depolymerization products. **T.B. Telenar**, T. Long, M. Green

4:45. Bis (2-hydroxyethyl) terephthalate as a comonomer to enable polyurethane depolymerization. **C. Westover**, T. Long

5:00. Glassy and ductile thermosets as a recyclable and energy-saving alternative to semicrystalline thermoplastics. **C. Wang**, C.J. Reese

5:15. Antibiotic and antifungal drug-impregnated contact lenses via supercritical carbon dioxide for the treatment of keratitis. **S. Sagbas**, B. Ari, B. Gungor, H. Erdogan, C. Silan, **N. Sahiner**

WEDNESDAY AFTERNOON

New Orleans Marriott
Galerie 5

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*
B. Rogers, J. D. Smith, *Presiding*

2:00. Precision synthesis of bis(2,2,6,6-tetramethyl-4-piperidinyl methacrylate) disulfide and its application in covalent adaptable networks made by free-radical polymerization. **T. Debsharma**, J.M. Torkelson

2:15. Tunability of internally catalyzed dynamic transesterification in poly(benzoxazine) vitrimers. **J.A. Davis**, J. Aguinaga, D.L. Patton

2:30. Shape morphing via stereoselective relaxations in Diels-Alder polymer networks. **J. Moon**, Z. Sang, S.A. Sukhishvili

2:45. Unreacted amine groups: Indispensable keys to unlock imine bonds in dynamic networks. **M. Martins**, P. Carden, G. Toletay, S. Ge, B. Li, A.P. Sokolov

3:00. Effect of additives on deformation rate-adaptive conducting polymers. **D. Wu**, Y. Wang

3:15. The behavior of DQ-gelatin in a swelling polymeric system. **B. Rogers**, I. Moore, C. Tyson, J. Dumas

3:30. Withdrawn

3:45 Intermission.

4:00. Sustainable polyesters: Combining bio-based resources with function integration. **B. Voit**, C. Mielke, D. Pospiech

4:15. Preparation, structure, and properties of stimuli-responsive and conductive cellulosic gels. **F.K. Masese**

4:30. Evaluation of bio-based hybrid building blocks as surface coating materials. **E. Kinaci**, s. salazar, G.R. Palmese, J.F. Stanzione

4:45. Organocatalysis for green synthesis of tunable polyester photopolymers. **A.C. Weems**

5:00. Morphology, surface properties and mechanical behavior of poly(ethylene-*co*-vinyltriethoxysilane) grafted to model silica surfaces. **J.D. Smith**, J.W. Brandt, P. Brant, B.P. Carrow, M.L. Robertson, A. Karim

5:15. Leveraging DNA intercalation to tune bulk properties of supramolecular hydrogels. **S.M. Hughes**, A. Aykanat, N. Pierini, W. Paiva, A. Edwards, A. Weeks, O. Durant, N. Oldenhuis

5:30. Biocompatible Polyglycidol-based hydrogels for load-bearing tissue engineering. **D. Beezer**, E. Harth

WEDNESDAY AFTERNOON

New Orleans Marriott
Galerie 3

Advances in Polymer Materials for Biotechnology

Financially supported by Syensqo

N. Kelley-Loughnane, *Organizer*
K. Crawford, D. Simone, *Organizers, Presiding*

2:00 Introductory Remarks.

2:02. Chiral induced spin selectivity and its implications for electrocatalysis and electrochemical reactions. **D.H. Waldeck**

3:02. Modeling of specific and non-specific therapeutics with large multivalent architectures. **P. Kral**

3:32. Smart cocktails of polymer and antibiotic to fight multi-drug resistant (MDR) Gram-negative bacteria. **S. Barman**, J. Hwang, L. Kurnaz, S. Bishton, A.W. Decho, C. Tang

3:52. Synergistic nanostructured block copolymer surfaces for antimicrobial properties. D. Salatto, A. Gauer, T. Benziger, D. Thanassi, J. Carrillo, M. Takenaka, **M.K. Endoh**, T. Koga

4:12 Intermission.

4:28. Making oligonucleotide better medicines with bottlebrush polymers. **K. Zhang**

4:58. Enzymatic modification of PrnA for halogenated polymer precursors. **K.D. Power**, A. Cutright, A. Perkins, J.R. Billups, V. Varshney, D. Simone, S. Stokes, J. Emerson

5:18. Towards tunable, fully-degradable, stereocomplexed hydrogel microparticles via microfluidic assembly. **G. Tuttoni**, R. Zhong, S. McDonald, T.J. Huang, M. Becker

5:38. Integrated experimental and computational studies on the influence of surface geometry on the bactericidal property of nanotopographical thin films. **A. Gauer**, D. Salatto, Y. Bajaj, T. Benziger, J. Carrillo, M. Takenaka, D. Thanassi, M.K. Endoh, T. Koga

5:58 Concluding Remarks.

WEDNESDAY AFTERNOON

New Orleans Marriott
Galerie 4

Novel Applications of Polymeric Materials

C. Thomas, *Organizer*

Z. Smith, C. P. Ward, *Presiding*

2:00. Investigation of infrared light assisted curing of epoxy resin composite inks for direct ink writing applications. **Z. Smith**, R. Advincula

2:15. Rationally designed ROMP polymers to enhance electrocatalytic CO₂ reduction by cobalt phthalocyanine. **W.W. Kramer**, N. Keyes, F. Valoy, I. Vogelsang, A. Browne, C. Boivin

2:30. Developing modern polymeric materials for biomedical applications. **S.K. Hamilton**, H. Murphy, C. Cole, W. Lawrence, K. Flynn, C.M. McClain

2:45. Patterned polycaprolactone polymer as template for aluminum oxide nanopatterning by sequential infiltration synthesis. **M. Biswas**, S. Patra, C. Herbert, L. Nichols, U. Manna

3:00. Ultratrace PFAS detection using amplifying fluorescent polymers. **J. Castro-Esteban**, A. Concellon, T.M. Swager

3:15. Precision glycopolymers for capture and release of divalent cations. **S. Jeon**, T. Haynie, C.E. Callmann

3:30. Shape-stabilization of phase change materials with carbon-conscious Poly(hydroxy)urethane foams. **M. Lee**, C. Lucci, S. Dahlhauser, N. Rorrer, R.D. Allen

3:45 Intermission.

4:00. Novel tamper-indicating materials. **C. Corbin**, S.L. White, M. Humphries, C. Curtis, C. Parada, H. Smartt

4:15. Thiol-ene reactions for the synthesis of block-random copolymers. **R. Gadimli**, J. Albert

4:30. Melt-mixed thermoplastic polymer composites for harvesting waste heat using the thermoelectric effect. **P. Poetschke**, B. Krause

4:45. Biomass-derived sustainable and mucus-mimicking hydrogels: Applications in inhibition of infectious agents. **S. Chandna**, C. Nie, S. Wedepohl, E. Quass, K. Ludwig, R. Haag, S. Block

5:00. Embracing industry academia partnerships will solve the plastic pollution crisis faster. **C.P. Ward**, B. Edwards, S.T. Perri, C. Reddy

5:15. Withdrawn

5:30. Elevating the value of commodity plastics through tailored vitrimer chemistry. **M. Rahman**, T. Saito

5:45. Synthesis and evaluation of antioxidant dendrimers. **C.Y. Lee**, R.L. Uzarski, B. Agbemade

WEDNESDAY AFTERNOON

New Orleans Marriott

Mardi Gras Ballroom Salon A

Polymers for a Circular Economy

Technology Perspective

S. Avraamidou, A. Carpenter, A. Yvon-Bessette, *Organizers, Presiding*

2:00 Introductory Remarks.

2:05. Technology perspective for implementing the circular economy for polymers. **K. Knauer**, **R. Van Lehn**, **R.A. Auras**

2:50 Discussion.

3:00 Intermission.

3:10. Textiles circularity through designer molecules. **C. Wentz**, A. Forster

3:30. Synthesis, characterization and catalytic recycling of bio-based thermoplastics. **D. Pinson**, F. Eckstrom, L.C. Baldwin, G.S. Ostrom, B.G. Harvey

3:50. Upcycling polystyrene materials with a hybrid chemical/biological system. **C. Olivar**, J.Y. Lim, Z. Yu, B. Miller, B.R. Oakley, C. Wang, S.R. Nutt, T.J. Williams

4:10. Closed-loop recycling of mixed polyesters via catalytic methanolysis and monomer reclamation. **J. Curley**, Y. Liang, J. DesVeaux, H. Choi, T. Uekert, R. Clarke, W. Michener, Y. Wu, L. Stanley, A. Maurya, C. Tassone, A. Jacobsen, O. Mante, G. Beckham, K. Knauer

4:30 Intermission.

4:40. Reactive extrusion decrosslinking of polyurethane networks. **J. Nettles**, T.E. Long, K. Jin

5:00. Chemical recycling of waste polyolefins into chemically recyclable materials. **K. Liu**, G. Miyake

5:20. Selective depolymerization of thermoplastic polyurethane for circular use. **R. Rafiq**, H. Zucco, B. Chen, D. Sheppard, J. Plusnin, M. Persoons, G. Cormack, G. Vesper

5:40. Upcycling brittle polypropylene into toughened vitrimer networks using polymeric crosslinkers. **M. Sadri**, S. Patil, J. Perkins, Z. Gunter, S. Cheng, Z. Qiang

WEDNESDAY AFTERNOON

New Orleans Marriott
Galerie 6

Synthesis, Processing, and Fabrication of Polymeric Materials

C. Urdaneta Thomas, *Organizer*
A. Pathan, J. Runge, *Presiding*

2:00. Traceless crosslinking in polyisobutylene (PIB) materials. **A. Pathan**, J.M. Eagan

2:15. Mapping the drug-loading design space of long-acting cross-linked microparticles. **J.R. Bufton**, C. Allen

2:30. Guanidine based polymeric sorbents for the direct air capture of CO₂. **M. Modayil Korah**, M. Green

2:45. Withdrawn

3:00. Withdrawn

3:15. Withdrawn

3:30. Incorporation of high TG CO₂-derived polycarbonate segments in polyurethane foam elaboration by using Mtblock copolymers. **Y. Huang**, T. Lin, K. Iyer, J.M. Torkelson

3:45 Intermission.

4:00. Sugar-based polymers for renewable, degradable, and efficient battery electrolytes. **J. Runge**, F. Marken, A. Buchard

4:15. Withdrawn

4:30. Understanding structure-activity relationships of cyclic acetals to tune polymer degradation. **J.A. McLaughlin**, G.R. Palmese

4:45. Piezo-particles mediated polymerization for functional polymeric materials. **F. Ram**, A.P. Esser-Kahn

5:00. Comprehensive dynamics in polyelectrolyte coacervates. **J.B. Schlenoff**, K. Akkaoui

5:15. Withdrawn

5:30. Withdrawn

5:45. Improving the performance of biodegradable mulch films through polymer modifications. **J.H. Wang**, B. Zhou, Z. Wang, Y. Tian, Y. Bai

State of the Art in Protein-Based Engineered Materials
Silk/Protein Sequence Engineering for Tuning Materials Properties
Sponsored by CELL, Cosponsored by AGFD, COLL and PMSE

WEDNESDAY EVENING

New Orleans Marriott
Grand Ballroom

PMSE/POLY Plenary Lecture and Awards Reception

6:30. Plenary Lecture: Lessons learned from three decades at the helm of Polymers at NSF.
Dr. Andrew J. Lovinger